

CLASSIFICATION AND NOMENCLATURE IN WITSUWIT'EN ETHNOBOTANY: A PRELIMINARY EXAMINATION

LESLIE M. JOHNSON-GOTTESFELD

*Department of Anthropology
University of Alberta
Edmonton, Alberta
Canada T6G 2H4*

SHARON HARGUS

*Department of Linguistics
University of Washington
Box 354340
Seattle, Washington
USA 98195-4340*

ABSTRACT. — The Witsuwit'en are Athapaskan speaking peoples of northwestern British Columbia, Canada. They were traditionally foragers who harvested salmon, game animals and a diversity of plant foods. Witsuwit'en plant classification includes a large number of generics or basic terms. Folk specifics are poorly developed. There are also major plant classes, or "life forms", and intermediate groupings. "Life forms" include 'tree', 'plant', 'berry', 'flower', 'moss', 'fungus' and perhaps 'grass'. The first two satisfy criteria proposed by Berlin and Brown in being morphologically defined, transitive, and containing relatively large contrast sets. The remainder are cross-cutting ('berry'), utilitarian ('berry', 'flower'), or empty ('moss', 'mushroom', 'flower'), showing similarities to "life forms" reported for other northwestern North American peoples. Several intermediate groupings are proposed, defined either by morphology or utility, including such types as 'willows', 'spines', and 'poisonous plants'. Utility seems to be important in perception and grouping of plants, and may be directly or indirectly coded in plant names. A number of Witsuwit'en plant names are loan-words from Gitksan, a Tsimshianic language spoken to the north and west.

RESUMEN. — Los witsuwit'en son gente de lengua atabascana del noroeste de la Columbia Británica en Canadá. Tradicionalmente eran pescadores de salmón, cazadores y recolectores de diversos alimentos vegetales. La clasificación witsuwit'en de plantas incluye un gran número de términos genéricos o básicos que se designan por lexemas primarios simples o no productivos, o en ocasiones por frases descriptivas. Hay también clases mayores de plantas, o "formas de vida", y agrupaciones intermedias. Solamente una forma genérica descrita hasta ahora, *tl'oy*, 'pasto', parece estar dividida en categorías indígenas específicas. Las "formas de vida" incluyen 'árbol', 'planta', 'baya', 'flor', 'musgo', 'hongo' y tal vez 'pasto'. Las primeras dos satisfacen los criterios propuestos por Berlin y Brown en cuanto a ser definidas morfológicamente, ser transitivas, y contener juegos de contraste relativamente grandes. Las restantes son categorías entrecruzadas ('bayas'), son utilitarias ('bayas', 'flores'), o están vacías ('musgo', 'hongo', 'flor'), mostrando semejanzas con las "formas de vida" reportadas entre otros pueblos del noroeste de Norteamérica. Se proponen varias agrupaciones intermedias, definidas ya sea por su morfología o por su utilidad, incluyendo tipos tales como

los 'sauces', las 'espinas', y las 'plantas venenosas'. La utilidad parece ser importante en la percepción y agrupación de las plantas, y puede ser codificada directa o indirectamente en los nombres botánicos. Cierta número de nombres witsuwit'en de plantas son préstamos del gitksan, una lengua tsimshiánica hablada hacia el norte y occidente.

RÉSUMÉ. — Les Witsuwit'en sont des Athapasquans du nord-ouest de la Colombie britannique au Canada. Ils vivaient traditionnellement de chasse au gros et au petit gibier, de pêche au saumon et de cueillette de plantes alimentaires. La classification witsuwit'en des plantes comprend un nombre élevé de taxons de base ou génériques qui sont désignés par des lexèmes primaires simples (non analysables) ou stériles (analysables mais non productifs), ou quelquefois des phrases descriptives. Il y a également des classes majeures de plantes ou formes du vivant, et des catégories intermédiaires. Un seul générique décrit jusqu'à présent, *tl'oy* 'herbe', semble être subdivisé en taxons spécifiques. Les "formes du vivant" sont les suivantes: 'arbre', 'plante', 'baie', 'fleur', 'mousses', 'champignon' et peut-être 'herbe'. Les deux premières sont conformes aux caractéristiques de ces catégories telles qu'établies par Berlin et Brown: elles sont définies à partir de critères morphologiques, elles sont transitives et se subdivisent en ensembles contrastés relativement larges. Les autres chevauchent d'autres catégories ('baie'), sont de nature utilitaire ('baie', 'fleur'), ou sont vides ('mousses', 'champignon', 'fleur'), montrant des similitudes avec les 'formes du vivant' rapportées pour d'autres peuples du nord-ouest de l'Amérique du Nord. Certaines catégories intermédiaires sont proposées, définies à partir de critères morphologiques ou utilitaires, comme les 'saules', 'les plantes à piquants' et 'les plantes vénéneuses'. Les facteurs utilitaires semblent jouer un rôle important dans la perception et la catégorisation des plantes et les noms de plantes peuvent refléter directement ou indirectement cet état. Un certain nombre de noms de plantes witsuwit'en sont des emprunts du Gitksan, une langue tsimshiane parlée au nord et à l'ouest.

INTRODUCTION

The Witsuwit'en, an Athapaskan¹ speaking group of northwestern British Columbia (Figure 1), are traditional foragers in a largely forested environment transitional between the coastal rain forest and the boreal forest. Their traditional subsistence emphasized fishing for anadromous salmon, lake fishing, and hunting for large and small game, supplemented with collection of a wide variety of berries, and a few kinds of tree cambium, root vegetables, and greens. The Witsuwit'en presently live largely in two modern villages along the Bulkley River, and are integrated into the contemporary Canadian cash economy, although various foraging activities still take place (Gottesfeld 1994, 1995).

Virtually all modern Witsuwit'en speak at least some English and essentially all people under about 40 years of age are monolingual English speakers. In Moricetown, the community with the largest number of Witsuwit'en speakers, only 10-15% of the community of roughly 1200 can be classed as native speakers. Witsuwit'en is spoken in daily conversation primarily by elders over about 65 years of age; this group of people may have limited fluency in English. In public venues, Witsuwit'en is encountered chiefly in the feasthall. All songs are in

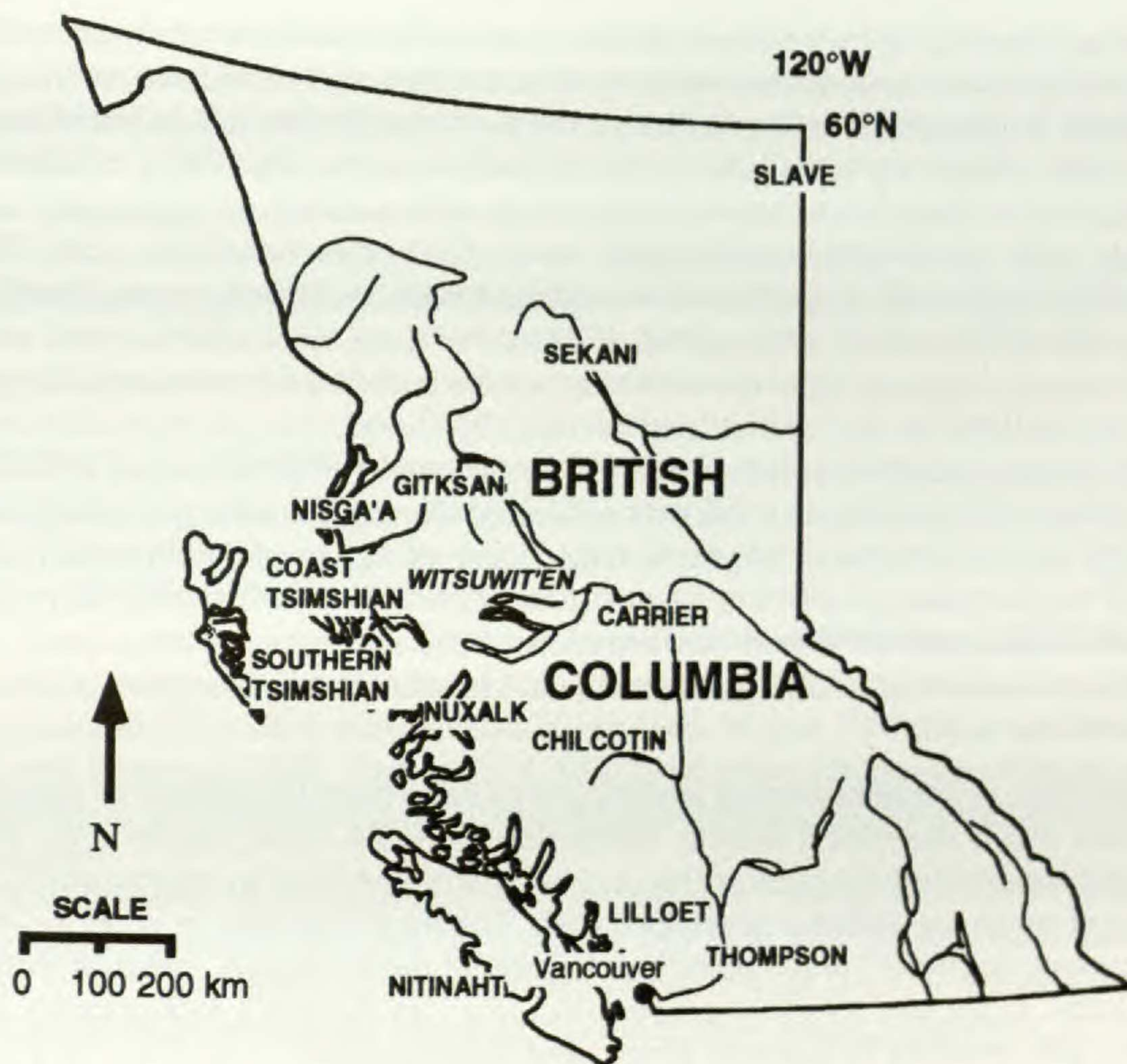


FIGURE 1. — Map showing the general areas of different British Columbia indigenous languages mentioned in the text. Languages not mentioned in our analysis are not indicated on the map.

Witsuwit'en, and formal speeches are preferably given in Witsuwit'en. Data for this study were collected primarily from speakers born before 1930, for whom Witsuwit'en was the preferred language. Some younger speakers were also consulted regarding proper translation into English of certain terms.

Methods. — The data for this analysis of plant classification and nomenclature were collected by Johnson-Gottesfeld during ethnobotanical, ethnomedical, and ecological fieldwork among the Witsuwit'en in the period 1986-1996. The data were gathered in a series of unstructured interviews regarding plant uses, identification, and naming, and during several field trips to gather medicinal plants. Plant information was elicited at times by bringing fresh specimens to elders and inquiring what specific plants were called. Information was also collected by reference to a loose-leaf notebook of color photos of local plants and plant parts such as berries, stems, petioles, or rootstocks. Other plant data were volunteered spontaneously. Confirmation of identity of spontaneously described plants was by reference to fresh plant material collected to confirm postulated identifications, and to "case" specimens (Bye 1986) of known identity (e.g., a dried plant rhizome

carried as a charm), or by freehand sketches and verbal descriptions, later verified by showing a plant or specimen to an elder to confirm the identification. Voucher specimens are deposited in the herbarium of the Royal British Columbia Museum in Victoria; a duplicate set is held in the Herbarium of the University of Alberta.

Interviews were conducted in Witsuwit'en with a bilingual translator,² or in English, with use of Witsuwit'en plant names and other botanical terms. Plant names and taxonomic questions were explored with 19 different consultants, all fluent, native speakers of Witsuwit'en. Eighteen of these were over 60 years of age when interviewed, and all of the consultants who contributed substantial linguistic data had lived on the land at least in their childhood.

Linguistic research was independently carried out by Sharon Hargus with fieldwork from 1988-present, and she was consulted during the data gathering phase to check the correctness of linguistic data. Some of her recent fieldwork has included re-elicitation of plant terms originally collected by Priscilla Kari (now Russell) in the mid 1970s and confirmation of the referents of these terms with specimens or photographs in plant manuals. Linguistic analyses presented in this paper are her work.

Classification. — Ethnobiological classifications have been the subject of many papers and much theoretical debate. According to Berlin (1992; Berlin *et al.* 1973), ethnobiological classifications are taxonomic and hierarchical in organization, consisting of up to six different levels or ranks. The most inclusive is what he terms the "unique beginner" (e.g., 'plant'), unnamed in most cultures, ranging through "life form" (e.g., 'tree'), "intermediate" taxa (e.g., 'evergreen'), folk generics (e.g., 'pine'), folk specifics ('lodgepole pine'), and folk varieties.

Not all cultures have all of the "universal" ethnobiological taxonomic ranks represented in their classifications. In particular, Berlin (1992), Waddy (1982), and Hunn and French (1984) have argued that foraging peoples tend to lack folk specifics and may have fewer recognized life form categories, or no life forms (Brown 1985). Most generics are reported to be included in one or another life form, but many are not clustered within intermediate taxa. Similarly, few generics are reported to be further sub-divided.

It has been argued that a classification which usually develops only two levels is perhaps not most fruitfully conceptualized as "hierarchical" (Morris 1984; Ellen 1993; Randall 1976, 1987).³ However, it is not our purpose to debate this theoretical point here. Although alternative terms for ethnobiological taxa have been proposed by Bulmer (1974) and Atran (1990), Berlin's terms for the different ranks of folk biological classification are those generally used in the literature, and we have chosen to employ them in this study. Our use of these terms does not mean that we accept *a priori* Berlin's conclusions about the nature of ethnobiological classification, and our usage of "life form" does not conform entirely to his criteria, as will be discussed below.

Generics are what Berlin (1992) calls the basic units, the most salient and perceptually distinct "kinds" of plants or animals, in any ethnobotanical taxonomy. Berlin (1992) and Atran (1990) have commented that folk generics are usually equivalent to scientific species in a local context. However, the distinction between generics may be more on the order of differences between scientific genera, be-

cause many genera will be monotypic in any local environment. In some instances, the generics may be partitioned into folk specifics, which are recognized as being special cases of the generic which differ in one or a few characters. In relatively few instances, folk species are further broken down into superficially recognized but similar varieties. This usually occurs with distinctive cultivars or color phases of cultivars, and does not typically occur with wild plant species.

Major plant categories in ethnobotanical classification have been called life forms (Atran 1985, 1990; Berlin *et al.* 1973; Berlin 1992; Brown 1977, 1984). Life forms are understood by these authors to be broad groupings of plant kinds based on morphological characters, typically designated by monomorphemic words (called by Berlin [1992] simple primary lexemes), and containing contrast sets of subordinate named generics. Atran (1990) maintains that life forms are natural, rather than artificial, categories which divide up the botanical domain without overlap (although Berlin 1992 notes that not all generics appear to be affiliated with these broad groupings). There has been considerable debate in the literature over the validity and universality of such plant groupings in cultural context (Hunn 1982; Randall 1976, 1987; Randall and Hunn 1984; Morris 1984; Taller de Tradición Oral and Beaucage 1987; Turner 1974, 1987) and what the nature of broad plant groupings is in various cultures whose ethnobotanical classification has been investigated.

Intermediates were originally conceptualized by Berlin *et al.* (1973) as covert groupings of generics between the ranks of life form and generic; they were believed to be rare. Subsequent work has revealed that intermediates are more widespread than previously believed, and that they might sometimes be overtly labeled (Berlin 1992). Studies by Turner (1989) and Taller de Tradición and Beaucage (1987) reveal that for some groups, there might be a relatively large number of intermediates of varying inclusivity, and, according to Turner, with variable bases for inclusion, ranging from strictly morphological to utilitarian or even symbolic. Atran (1985, 1990) rejects non-morphologically based intermediates, but allows for the existence of "covert family fragments", morphologically based intermediates which cross-cut the life form category, postulating that the modern botanical Family is derived from these. Brown (1977) has rejected unlabeled ethnobiological classes, while Taylor (1990) explores the relationship of botanical terminology to classification among the Tobelo, and concludes that unlabeled classes can be recognized by the use of terms which pertain only to the members of the postulated class. An example from our study area would be the existence of the term ?'I'co-nifer leaf or needle', which implies the class "evergreen needle bearing tree/shrub."⁴

WITSUWIT'EN CLASSIFICATION

Witsuwit'en classification includes general plant classes of the "life form" rank, a number of generics, at least some intermediate groupings, and possibly one polytypic generic divided into several species. The generic level is the only level encountered in general use; major plant classes or "life forms" and intermediates are more implicit than commonly referred to in discourse about plants. As is typical of most folk botanical classifications, Witsuwit'en generics in general match

TABLE 1.— Witsuwit'en Basic Level Terms: Generics and "Empty" Life Forms

Plant Species	English Name	Witsuwit'en Name	Life form
<i>Abies lasiocarpa</i> (Hook.) Nutt.	subalpine fir	<i>ts'o tsən, ho'oqs</i>	<i>dəcən</i>
<i>Acer glabrum</i> Torr. ssp. <i>douglasii</i> (Hook.) Wesmael	Douglas maple	<i>?aç, ?aç cən</i>	<i>dəcən</i>
<i>Achillea millefolium</i> L.	yarrow	<i>bə?əl yez wəni</i>	
<i>Agrostis tenuis</i> Sibth.	red top	<i>tl'oγ</i>	<i>tl'oγ?</i>
<i>Alectoria</i> or <i>Bryoria</i> spp.	"black tree moss"	<i>dəχ ye</i>	
<i>Allium cernuum</i> Roth	nodding onion	<i>tl'oγ həłtsən</i> <i>cət'an həłtsən</i>	<i>tl'oγ?</i>
<i>Alnus crispa</i> (Ait.) Pursh	'mountain alder'	<i>wəze</i>	<i>dəcən</i>
<i>Alnus incana</i> (L.) Moench	alder	<i>q'əs</i>	<i>dəcən</i>
<i>Amelanchier alnifolium</i> Nutt.	saskatoon berry	<i>təyəχ</i>	<i>dəcən, mi?</i>
<i>Apocynum androsaemifolium</i> L.	spreading dogbane	<i>lex, c'əndeqł</i>	
<i>Aquilegia formosa</i> Fisch.	red columbine	<i>ləsuc</i>	
<i>Aralia nudicaulis</i> L.	wild sarsparilla	<i>sgənistl'es</i>	
<i>Arctostaphylos uva-ursi</i> (L.) Spreng.	kinnikinnik	<i>dəniç</i>	<i>c'ət'an, mi?</i>
<i>Arnica cordifolia</i> Hook. and <i>?Taraxacum officinale</i> Weber	heart-leaved arnica; dandelion?	<i>ditnic kwə'n</i>	
<i>Betula papyrifera</i> Marsh.	paper birch	<i>q'əy</i>	<i>dəcən</i>
<i>Carex</i> sp.	sedge	<i>tl'oγ təl,</i>	<i>tl'oγ?</i>
<i>Chrysanthemum leucanthemum</i> L.	ox-eye daisy	<i>c'ət'an tsəy?</i>	
<i>Cicuta douglasii?</i> (DC) Coult. & Rose	water hemlock?	<i>wəyən co, wənyeni co,</i> <i>honyeni co</i>	
<i>Cirsium arvense</i> (L.) Scop.	Canada thistle	<i>wəle yinət'əyh</i>	
<i>Cornus canadensis</i> L.	bunchberry	<i>dəniç yez, cəniç t'an,</i> <i>guziç mi?</i>	<i>c'ət'an,</i> <i>mi?</i>
<i>Cornus stolonifera</i> Michx.	red-osier dogwood	<i>qaq dəlq'ə'n, q'əntsec</i>	<i>dəcən</i>
<i>Corylus cornuta</i> Marsh.	beaked hazelnut	<i>tsaləc qəkwə'n</i>	<i>dəcən</i>
<i>Crataegus douglasii?</i> Lindl. #	?black hawthorne	<i>xwəs mi?</i>	<i>dəcən, mi?</i>
<i>Cypripedium montanum</i> Dougl.	mountain lady slipper	<i>dəłtse yil, cəlqe yiz</i>	
<i>Delphinium glauca</i> # S. Wats.	tall larkspur	<i>dəni zic gus</i>	
<i>Dryopteris expansa</i> (K.B. Presl) Fraser-Jenkins & Jermy	spiny woodfern	<i>dəyi'n</i>	
<i>Epilobium angustifolium</i> L.	fireweed	<i>χas</i>	<i>c'ət'an</i>
<i>Equisetum arvense</i> L., <i>E. pratense</i> Ehrb.	horsetail	<i>χəχ de?, χəχ c'ət'an</i>	<i>tl'oγ</i>
<i>Fragaria virginiana</i> Duchesne	wild strawberry	<i>yən tədəlq'ə'n</i>	<i>c'ət'an, mi?</i>
<i>Fritillaria camschatcensis</i> (L.) Ker-Gawl	riceroot lily	<i>c'ənqatł, c'ənqatl</i>	
<i>Geum macrophyllum</i> Willd.	large-leaved avens	<i>həlq'ət bən</i>	
<i>Heracleum lanatum</i> Michx.	cow parsnip	<i>gus</i>	<i>c'ət'an</i>
<i>Inonotus obliquus</i> (Pers.: Fr.) Pilat	cinder conk	<i>dəc'əc'əsts'o?, tl'eç tse</i>	
<i>Juniperus communis</i> L.	common juniper	<i>detsan qe gət,</i> <i>detsan ?anqət,</i> <i>detsan cən, detsan ?əl</i>	
krumholz <i>Abies lasiocarpa</i> and/or <i>Tsuga mertensiana</i> (Bong.) Carr	'mountain juniper' timberline subalpine fir and mountain hemlock	<i>ts'əχ</i>	<i>dəcən</i>

TABLE 1.— (continued)

Plant Species	English Name	Witsuwit'en Name	Life form
<i>Lathyrus nevadensis</i> Wats.	peavine	qənesdəs	
<i>Ledum groenlandicum</i> Oeder	Labrador tea	lədi məsgic	
<i>Lonicera involucrata</i> (Rich.) Banks	black twinberry	səs mi? cən	dəcən, mi?
<i>Lupinus</i> sp. (<i>arcticus</i> ?)	lupine	dzət q'ət tl'oy	
<i>Lycodium selago</i> L.?	fir clubmoss?	hatac	
<i>Lysichiton americanum</i> Hult+n & St. John	skunk cabbage	c'ət'an co	
<i>Mentha arvensis</i> L.?	field mint?	c'ət'an ts'oltsən	
<i>Nuphar polysepalum</i> Engelm. and <i>Calla</i> <i>palustris</i> L.	yellow pond lily	χət t'ats, dəlkw'ax nefdəc (leaves) wəyut (root)	
<i>Oplopanax horridum</i> (Smith) Miq.	devil's club	xwəs, xwəs co (also kwəs, kwəs co)	
<i>Picea engelmannii</i> x <i>glauca</i>	spruce	ts'o	dəcən
<i>Picea mariana</i> (Mill.) Britt., Sterns & Pogg	black spruce	nedus, ts'o, ts'o dəz??	dəcən
<i>Pinus contorta</i> Dougl.	lodgepole pine	cəndu	dəcən
<i>Plantago major</i> L.	broad-leaved plantain	dəlkw'ax nefdəc	
Poaceae, indet.	grass sp.	tl'oy lədi	tl'oy
<i>Populus tremuloides</i> Michx.	trembling aspen	t'əyəs	dəcən
<i>Populus balsamifera</i> L. ssp. <i>trichocarpa</i> (Torr. & Gray) Hult.	black cottonwood	ts'əy	dəcən
<i>Prunus ?pensylvanica</i> L.	'red cherry'	snəw	dəcən, mi?
<i>Prunus pensylvanica</i> •	bird cherry	smits'oq	dəcən, mi?
<i>Pyrola</i> sp. or <i>Moneses uniflora</i> (L.) Gray	wintergreen or single delight, 'beaver ear'	tša dzəq	
<i>Pyrus fusca</i> Raf.	Pacific crabapple	məlqs	dəcən, mi?
<i>Ribes oxycanthoides</i> L.	northern gooseberry	c'əndewəzgi, kw'əndewəzgi	mi?
<i>Ribes triste</i> ? Pall.	'wild red currant'	q'ay dətəgi	mi?
<i>Ribes ?lacustre</i> (Pers.) Poir	'wild black currant'	dəlkw'ax mi?	mi?
<i>Rosa acicularis</i> Lindl.	prickly rose	tset yil	c'ət'an, mi?
<i>Rubus idaeus</i> L.	red raspberry	bəyotgəkw	mi?
<i>Rubus parviflorus</i> Nutt.	thimbleberry	dəq dinqay (berry), misq'o? t'an (bush)	c'ət'an, mi?
<i>Rubus spectabilis</i> Pursh	salmonberry	məsgəle'n	mi?
<i>Salix</i> spp.	willow	q'endliç	dəcən
<i>Sambucus racemosa</i> L.	red elderberry	luts	dəcən
<i>Sedum divergens</i> Wats.	stonecrop	tse mi?	mi?
<i>Shepherdia canadensis</i> (L.) Nutt.	soapberry	nəwəs	mi?
<i>Sium suave</i> ? Walt. #	water parsnip? "wild carrot"	sasco, tsasco	
<i>Smilacina racemosa</i> (L.) Desf.	large flowered false Solomon's seal	təc tsəkwi mi?	
<i>Sorbus scopulina</i> Greene	mountain ash	dəcən həltsən, cənec'ət, dəcən məsdzi tsawəsdi, honq'ex ts'əcən	
<i>Sphagnum magellanicum</i> Brid. (part)	sphagnum moss	yin, yən tl'ax yəl, yin yəl?	

TABLE 1.— (continued)

Plant Species	English Name	Witsuwit'en Name	Life form
<i>Spirea douglasii</i> Hook. ssp. <i>menziesii</i> (Hook.) Calder & Taylor	pink spirea	<i>ts'ədəziç</i>	<i>dəcən</i>
<i>Streptopus roseus</i> Michx.	rosy twisted stalk	<i>tsəlto mi?</i>	
<i>Symphoricarpos albus</i> (L.) Blake	snowberry	<i>c'ətsəft mi?</i>	<i>dəcən, mi?</i>
<i>Thuja plicata</i> Donn. ex D. Don	western red cedar	<i>səmgən, het'əl</i>	<i>dəcən</i>
<i>Tsuga heterophylla</i> (Raf.) Sarg.	western hemlock	<i>məsdzu</i>	<i>dəcən</i>
<i>Typha latifolia</i> L.	cattail	<i>tl'oy zi, tl'oy c'əziç</i>	<i>tl'oy?</i>
<i>Urtica dioica</i> L.	stinging nettle	<i>hołts'ec</i>	
<i>Vaccinium caespitosum</i> Michx.	low-bush blueberry	<i>yəntəmi?</i>	<i>mi?</i>
<i>Vaccinium membranaceum</i> Dougl.	black huckleberry	<i>dəgi</i>	<i>mi?</i>
<i>Vaccinium ovalifolium</i> Smith	high-bush blueberry	<i>dindze</i>	<i>mi?</i>
<i>Vaccinium oxycoccus</i> L.	bog cranberry	<i>mi?o</i>	<i>mi?</i>
<i>Veratrum viride</i> Ait.	Indian hellebore	<i>qunye</i>	<i>c'ət'an</i>
<i>Viburnum edule</i> (Michx.) Raf.	high-bush cranberry	<i>tsəłtse</i>	<i>mi?</i>
unidentified fern? or synonym for skunk cabbage?, from swamp fern spp.	lady fern, spiny woodfern	<i>tsəł ?ax stan, ts'ətl'ax stan</i>	
fungi, in general	mushroom, fungus	<i>c'əbedzəq, c'əyēbedzəq, c'əbedzəq</i>	
puffball sp.	puffball	<i>dəni zic cac'əsgəkw</i>	
white lichen, probably a reindeer moss (<i>Cladonia</i> or <i>Cladina</i> spp.)	"caribou eat this"	<i>c'agu</i>	
water plant, unidentified••	'streaming'	<i>təx dləz</i>	
flower, in general	'flower', wildflower	<i>c'əndec</i>	<i>c'əndec</i>
mosses, in general	moss	<i>yin</i>	<i>yin</i>

* from Jenness 1943, reelicited from Pat Namox in 1996; identification from photograph, uncertain

identification from Kari (1978)

• may be an identification error as the Gitksan term refers to *P. virginiana* L. var. *melanocarpa* (Dougl.) Walp., chokecherry, which has dark fruit, in contrast to the red fruit of *snəw*

•• from the description, maybe a species of submerged *Potamogeton*

well with scientific species, while relatively inconspicuous plants such as mosses, lichens and fungi (fungal fruiting bodies) are underdifferentiated, with only a few Witsuwit'en terms for the many kinds in the local biota.

Generics. — Because the focus of the ethnobotanical study was on the utilization of plant resources, Johnson-Gottesfeld did not attempt to collect a complete inventory of all plants distinguished and named by the Witsuwit'en. She obtained terms for 75 basic level categories, that is, folk generics (see Table 1), and three terms which are "empty" life forms that appear to be undifferentiated residual classes (discussed below under *Major plant classes* and *Intermediates*). Seventy-one of the basic level categories are treated as folk generics which are not further subdivided. Further research by Hargus has added 16 terms for basic level classes and several variant names for plants already documented, for a total of 91 named basic level plant classes.

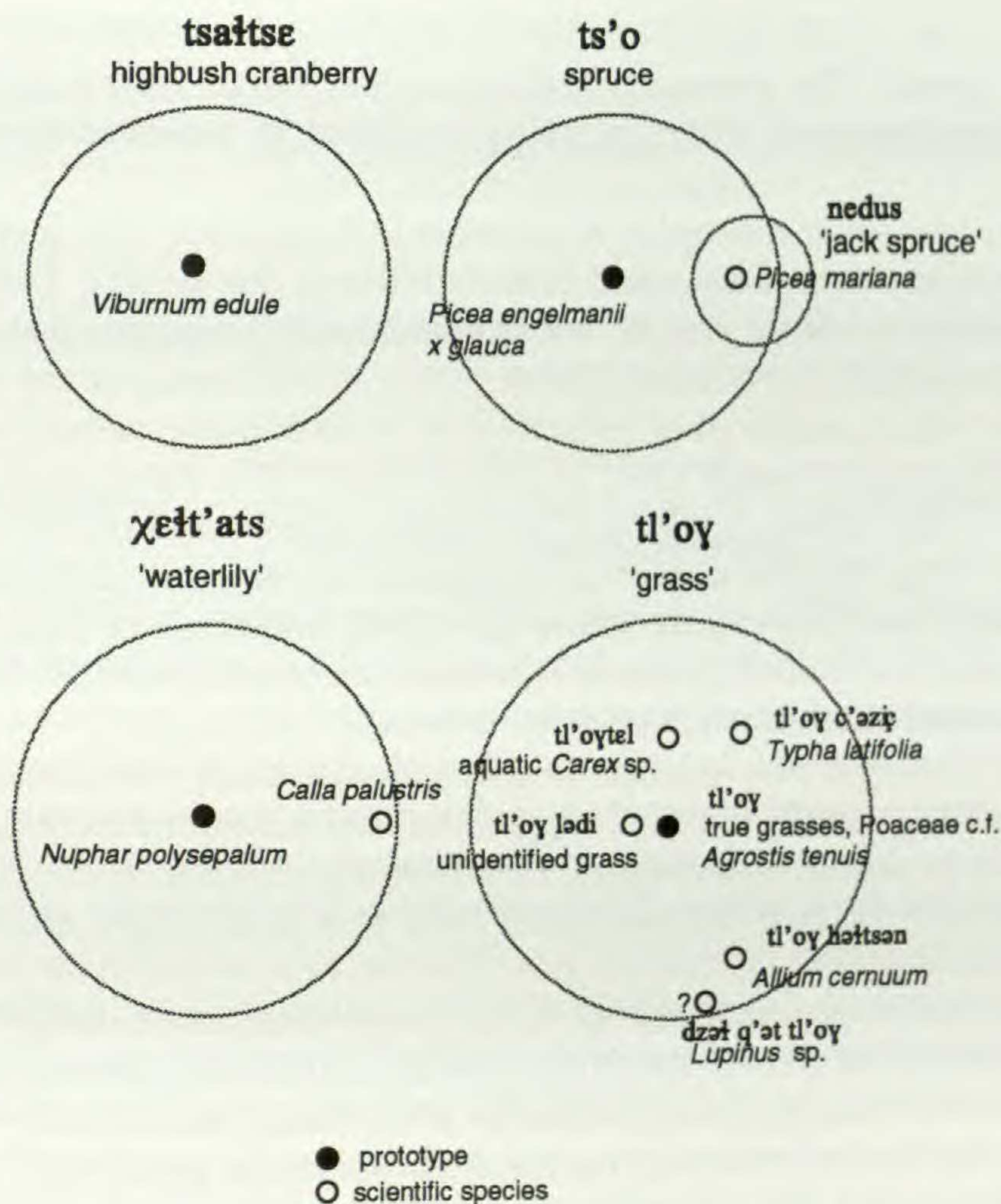


FIGURE 2. — Diagrams of several Witsuwit'en generics, showing a range of relationships of between Witsuwit'en generics and scientific species and genera. The bounds of Witsuwit'en generics are indicated by gray outlines. The prototypical scientific species is indicated by a solid black circle. Any other scientific species included in the Witsuwit'en generic are indicated with hollow circles. The generic *tl'o^β* also contains named Witsuwit'en subdivisions or specifics. Witsuwit'en names are given in boldface type, and scientific names in italics.

Most of the generics appear to correspond in their ranges to single biological species, but several may cover more than one scientific species (Figure 2). Of those generics whose range of reference is adequately known, 33 generics represented monotypic genera in the local flora, and 24 generics represented single biological species in polytypic genera (see species of *Rubus*, *Ribes*, *Vaccinium*, *Alnus*, and *Cornus* in Table 1).⁵ *ts'o* is an example of a generic which can refer to more than one species of a locally polytypic genus; it can refer to black spruce (*Picea mariana* (Mill.) Britt., Sterns & Pogg.) as well as the more common and widespread hybrid white spruce *Picea engelmannii x glauca*. Some groupings diverge further from botanical classification: *xet'ats* can refer to the shallow water aquatic plant *Calla palustris* L. (in the Araceae) as well as the yellow pond lily *Nuphar polysepalum* Engelm. (in the Nymphaeaceae), a medicinal plant. The consultant suggested in English that calla was a 'baby water lily'.

The only class which appears to be a polytypic generic with four named species is *tl'oy* 'grass'. The terms for nodding onion, sedge, cattail and a species of grass are all hyponyms of *tl'oy*; i.e., *tl'oy* modified by a second term (see Figure 2).

There are two other examples of possible folk specifics which we tentatively treat as coordinate taxa (Hunn and French 1984) at the generic level. While the term for bunchberry (*dəniç yez*, lit. 'small kinnikinnik') suggests that it is a species of *dəniç* 'kinnikinnik', we interpret these terms as two forms at the same level of classification with a relationship indicated by a diminutive, as has been reported in Sahaptin (Hunn and French 1984) and Slave (Rice 1989). No consultant described bunchberry — also called *cəniç t'an* (lit. 'marten plant') and *guziç mi?* (lit. 'gray jay berries') — as a "kind of *dəniç*" or suggested any special relationship between them, although speakers clearly know the literal meanings of such terms. Since we did not specifically elicit speakers' views on such relationships, our interpretation must be seen as tentative. Consider *ts'o tsən* 'subalpine fir' (*Abies lasiocarpa* [Hook.] Nutt.): Hargus has heard *ts'o tsən* spontaneously translated by its literal meaning 'stinking, smelly spruce', suggesting that subalpine fir might be treated as a type of *ts'o* 'spruce' (*Picea* spp.). However, no consultant indicated any relationship between the two nor explained how *ts'o tsən* might differ from some "typical" *ts'o*.

Although the 91 generics and specifics do not constitute a complete inventory of the flora known to the Witsuwit'en, they do exhibit the pattern reported for a number of other foraging peoples (Berlin 1992; Hunn and French 1984; Randall and Hunn 1984; Brown 1985) with around 2% polytypic generics.

The majority of plants recognized and named by the Witsuwit'en are large, salient in the environment, and of ecological importance or utility. In order to partially correct for the bias in the ethnobotanical fieldwork caused by the research focus on use of plants, during 1992 fieldwork Johnson-Gottesfeld attempted to elicit names of several plants that she had no indication were used by the Witsuwit'en. She was unable to obtain names for four plants, three of which are quite conspicuous and common. Two were flowering specimens of common herbs, Indian paintbrush (*Castilleja miniata* Dougl.) and a purple flowered aster (*Aster ?ciliolatus* Lindl.), and the third was a branch of a very common shrub, pink spirea (*Spiraea douglasii* Hook. ssp. *menziesii* [Hook.] Calder & Taylor), with flowers and fruits.⁶ Two elders commented that "in the old days" they would have had words for everything, including terms for the flowers, but they did not currently know any term for the aster and Indian paintbrush besides *c'əndec* 'flower'.

Major Plant Classes or "Life Forms".—Broad groupings of plant classes in Witsuwit'en are relatively difficult to identify without specialized elicitation sessions, as folk generics are the terms commonly employed. We will here provisionally employ the term "life form" for broad groupings of Witsuwit'en plant types which Johnson-Gottesfeld inferred during her field work (Table 2), although the groups we report here do not uniformly conform to the definitions of life form given by Berlin (1992), Atran (1985, 1990), or Brown (1977) in that they may be based in part on utilitarian criteria, are not always mutually exclusive, and may be "empty," that is, contain few or no named subordinate generics. This is similar to the situation described by

TABLE 2.— Witsuwit'en Major Plant Classes or "Life Forms"

Witsuwit'en Plant Class	Approximate English Gloss	Empty?
<i>dəcən</i>	'tree', large woody plant	no
<i>c'ət'an</i>	'plant', small shrubs and herbs	no
<i>mi?, nət'ay</i>	'berry', shrubs or low plants with berries; focused on edible fruits; not exclusive of <i>dəcən</i> or <i>c'ət'an</i>	no
<i>c'əndec</i>	'flower', herbs with conspicuous flowers	yes
<i>?tl'oy</i>	'grass', graminoid plants	yes
<i>yin</i>	'moss', including true mosses	yes
<i>c'ebedzəq, c'əyebedzəq</i>	'mushroom', fruiting bodies of fungi including 'mushrooms' and bracket fungi	yes

Turner (1974, 1987) for several other Indian groups in British Columbia. The following list of broad taxa of "life-form" rank, or major plant classes, must be considered preliminary until more detailed investigation is carried out.

A class of large woody plants, *dəcən*, is recognized. These include plants which have woody stems and vary from as tall as a person to forest canopy height. This includes both "trees" in the conventional English sense, and woody multiple-stemmed shrubs. *dəcən* are utilized for firewood, construction, and carving. Their bark provides resources for dye, cordage and medicines. *dəcən* also means 'bush, forest, woods' and 'stick, wood(en), (deciduous) branch'. A common type of medicinal decoction of mixed barks is called *dəcən yu?* 'bush medicine'.

Other major plant categories are less clearly defined. Smaller shrubs, large herbs (including at least one fern), and low growing herbaceous or semi-herbaceous perennials can be referred to with the term *c'ət'an* 'plant, leaf' (as in *χas t'an* 'fireweed plant'). Members of *dəcən* cannot be referred to by this term. Fireweed, strawberries, thimbleberries, prickly rose bushes, and Indian hellebore are all *c'ət'an* (*c'ə-* unspecified possessor + *t'an* 'bush, leaf'). A rose bush, for example, would be referred to as *tseł yil t'an* (*tseł yil* 'rosehip' + *t'an* 'bush, leaf'). We infer that there is a plant class *c'ət'an* which includes all such plants, although we have not attempted to elicit such a classification in the field.

Herbs with conspicuous flowers are lumped together as *c'əndec* 'flower', and are not usually subdivided by the modern Witsuwit'en. Forms with conspicuous flowers which have a use, however, are referred to by a specific name, such as red columbine (*Aquilegia formosa* Fisch.) *ləsuc* (lit. 'sugar'), or yarrow (*Achillea millefolium* L.) *bə?əl yez wəni* (lit. 'it has small conifer branches'). In addition, several common flowering herbs which are not used do have names (see Table 1); whether these various individually named flowering herbs are seen as subtypes of *c'əndec* was not investigated in the field. The term *c'əndec* also refers to the flower as a plant organ: "you don't pick the leaves of *lədi məsgic* [Labrador tea] when the *c'əndec* [flower] is on it." *ç'əndec* as a "life form" then is a residual category or "empty" life form (Hunn 1982; Hunn and French 1984; Turner 1987).

The term for grass may also be applied at the "life-form" level, and/or it may be an intermediate taxon or an unaffiliated folk generic with several folk species. If it is to be considered a "life form," then it is a "monogeneric life form" (*sensu* Atran 1985), in that it contains just one, or perhaps two generics, but exhibits a distinctive morphology and special role in the local "economy of nature", or an

"empty life form" (*sensu* Turner 1987) in that it does not include a contrast set of named generics. Several different graminoid plants were shown to Witsuwit'en elders to elicit names. Red top (*Agrostis tenuis*), a true grass, was labeled *tl'oŷ*. Sedge (*Carex* sp.) was labeled *tl'oŷ təl* (lit. 'wide grass'). A larger grass (as yet undetermined) was called *tl'oŷ lədi?* (lit. 'grass tea'). The names of the large aquatic graminoid cattail (*Typha latifolia* L.) are *tl'oŷ zi* (lit. 'large, dark grass') and *tl'oŷ c'əziç*. Another plant which appears to be classed as a 'grass' is nodding onion (*Allium cernuum* Roth), called *tl'oŷ həłtsən* (lit. 'stinking grass'). It has linear grass-like leaves, but is somewhat succulent, with showy flowers and a conspicuous smell. It is, incidentally, the only grass-like plant which was used by people for food. It can also be called *c'ət'an həłtsən* (lit. 'stinking leaves'), indicating a marginal position in *tl'oŷ*. A last possible 'grass' is lupine (*Lupinus* sp.), called *dzəł q'ət tl'oŷ* (lit. 'grass on the mountain'), though its dissimilarity in habitus might suggest that it is 'grass' only in the very general sense of being non-woody.

Horsetails (*Equisetum* spp.) may be marginally included in the 'grass' life form. *Equisetum arvense* L. was unnamed by one consultant, who said he guessed it could be called (in English) "grass." Two other speakers consulted called it *χəχ c'ət'an* (lit. 'goose leaves') or *χəχ de?* (lit. 'goose food').

There is a sense that *tl'oŷ* 'grass' may contain a connotation of uselessness, except for hay (and apparently 'stinkgrass', nodding onion). One elder contrasted a sedge specimen with other plants which had potential medicinal uses by saying "that's just *tl'oŷ*" (i.e., useless, neither a medicine nor harmful) (LJG interview notes 7/31/92).

When directly asked what term she would use for "all the low growing green plants I showed you" (including several graminoid specimens, horsetail, aster, and yarrow), one elder answered *q'ay nəyeχ* (lit. 'new growth'). Johnson-Gottesfeld had just asked about the Witsuwit'en term for 'tree' and intended to inquire about a term for 'herb' (or the 'grerb' of Brown 1977) in contrast to 'tree'. However, since we never encountered such a term or concept spontaneously, we are hesitant to conclude that this term can be accepted as a general 'herb' life form concept or term.

Evidence for 'berry' (*mi?* or *nət'ay*)⁷ as a "life form" or major plant category is suggested by the spontaneous listings in interviews of a number of plants which bear edible berries. Such forms include trees or large shrubs, smaller shrubs, and perennials which grow low to the ground (including the succulent *Sedum divergens* Wats. whose leaves are classed as a berry). As Turner (1987) found in her Thompson and Lillooet material, this classification cross-cuts other "life form" classes in that some members are doubly categorized (see Table 3). For example, saskatoons were listed spontaneously as *dəcən* (large woody plants) as well as *mi?* (berries). This may be because saskatoons were formerly prized for their hard straight wood for arrow shafts, an important pre-contact trade item, as well as being one of the most important berries for food. For other berries, such as rose hips, strawberries, or thimbleberries, when the focus is on the plant, as opposed to the fruit, they are referred to as *c'ət'an*.

In addition, some forms of conspicuous berry bearing plants are perhaps only peripherally categorized as 'berries' because the fruit is not edible. Examples include black twinberry (*Lonicera involucrata* [Rich.] Banks) and common snowberry

TABLE 3.— Witsuwit'en 'Berries'

Scientific Name (English name)	Witsuwit'en Name	Other "Life Form"*
<i>Amelanchier alnifolia</i> (saskatoon)	łəyəχ	dəcən
<i>Arctostaphylos uva-ursi</i> (kinnikinnik)	dəniç	
<i>Cornus canadensis</i> (bunchberry)	dəniç yez, cəniç t'an	c'ət'an
<i>Crataegus douglasii?</i> (thornberry')	xwəs mi?	
<i>Fragaria virginiana</i> (wild strawberry)	yən tədələq'ə'n	c'ət'an
<i>Lonicera involucrata</i> ('bearberry'#, black twinberry)	səs mi?	dəcən
<i>Prunus pensylvanica</i> ('wild red cherry', pin cherry)	snəw	dəcən
<i>Prunus pensylvanica?</i> ('wild cherry', bird cherry?)	smits'oq	dəcən
<i>Pyrus fusca</i> (Pacific crabapple)	mələqs	dəcən
<i>Ribes lacustre?</i> (swamp gooseberry)	dələkw'ax mi?	
<i>Ribes oxycanthoides</i> (northern gooseberry)	c'əndewəzgi	
<i>Ribes triste?</i> ('wild red currant')	q'ay dətəgi	
<i>Rosa acicularis</i> (prickly rose)	tset' yil	c'ət'an
<i>Rubus idaeus</i> (red raspberry)	bəyołgək	
<i>Rubus parviflorus</i> (thimbleberry)	dəq dinqay, misq'o?	c'ət'an
<i>Rubus spectabilis</i> (salmonberry) (red elderberry)	məsgəle'n	
<i>Sedum divergens</i> ('stoneberry', stonecrop)	tse mi?	
<i>Shepherdia canadensis</i> (soapberry)	nəwəs	
<i>Smilacina racemosa</i> ('dog penis berry'•, "sugarberry," false Solomon's seal berries)	łəc tsək	
<i>Symphoricarpos albus</i> (grouseberry'#, common snowberry)	c'ətsət mi?	dəcən
<i>Vaccinium caespitosum</i> ('low bush blueberry')	yəntəmi?	
<i>Vaccinium membranaceum</i> (black huckleberry)	dəgi	
<i>Vaccinium ovalifolium</i> ('highbush blueberry', oval-leaved blueberry)	dindze	
<i>Vaccinium oxycoccus</i> (bog cranberry)	mi?o	
<i>Viburnum edule</i> (highbush cranberry)	tsəłtse	

* other "life form" listed only where the use of the "life form" term with the berry name has been recorded; this information was not specifically elicited in the field

marginal members of *mi?* or perhaps contrasted with true *mi?* by animal names; have fruits which are considered inedible with stems which are used for medicinal bark collection

• an edible species with an animal anatomic name; said to resemble a dog's genitals in appearance

(*Symphoricarpos albus* [L.] Blake). These plants, discussed in more detail below, appear to be peripheral to the *mi?* / *nət'ay* category, and are classed primarily as *dəcən*.

Two "empty" life forms round out the classification of plants (*sensu lato*) by the Witsuwit'en. These are *yin* 'moss' and *c'əyebedzəq* or *c'ebedzəq* 'fungus' (hereafter referred to as *c'ebedzəq*). Moss was collected for diapers, and this moss is called *yin yəl* (lit. 'white moss') or *yən tl'ax yəl* (lit. 'white under ground'). The preferred moss is pale in color and very long. At times several "feather mosses" of

the forest floor may be used, although a very pale type of sphagnum moss (*Sphagnum magellanicum* Brid.), which grows in swamps (Johnson-Gottesfeld and Vitt 1996) is generally considered to be the real diaper moss. This sphagnum appears to be the prototype of the "life form." The term *c'ebedzəq*, which may contain the root *dzəq* 'outer ear', refers to both mushrooms and bracket fungi. Cinder conk, a bracket fungus of unusual form (*Inonotus obliquus* [Pers.: Fr.] Pilat), is called *tl'ę tse* or *dəc'əc'əsts'oʔ*. Whether this is considered a type of *c'ebedzəq* is not clear.

In common with other Northwest Coast groups, the set of major plant classes or "life forms" proposed for the Witsuwit'en is not congruent with the set of "ubiquitously occurring life forms" analyzed by Cecil Brown (1977, 1984). Vines, for example, are rare in northwestern North America, and are not particularly salient nor taxonomically diverse, whereas mosses, lichens and fungi are conspicuous, varied and abundant. Unsurprisingly, vine is not recognized as a life form by groups in this geographic region (Turner 1987), whereas empty classes denoting "moss" and "mushroom" are found among the Gitksan⁸ and may be characteristic of other groups in similar climatic regimes (Turner 1987:77).⁹ Clément (1990) describes a broad Montagnais bryoid taxon with numerous named types from the boreal forest region of northeastern North America. Atran (1985, 1990) recognizes that life forms have ecological relevance, and indeed are still retained in scientific ecology. He comments that life forms occupy distinctive roles in "the economy of nature."

In addition, characters other than morphology or plant habitus seem to be factors in generating broad groupings of plants, as will be discussed below under utilitarian factors. A "berry" taxon is reported by Turner (1987:72) for a number of northwest North American Native languages, by Randall and Hunn (1984:340) for the Sahaptin, by Compton (1993) for Southern Tsimshian, as well as for the Witsuwit'en and the Gitksan (Johnson 1997). Clément (1990) also reports a similar edible fruit taxon for the Montagnais. The prominence of berry bearing plants and their economic and cultural importance should perhaps not make it surprising that they should be recognized as a "life form" by various cultures of northwestern and northern North America.

The phenomenon of "empty" life forms subsuming less salient or utilized non-woody vegetation seems to be common to various northwest and northern North American groups. A "flower" class is reported by Clément (1990) for the Montagnais, and Johnson (1997), Turner (1987), Hunn (1982), and Randall and Hunn (1984) have recorded the presence of such a group for various northwest North American groups. "Grass" is similarly a class which is commonly recognized, but usually not extensively subdivided among many non-grain growing peoples, including the Lillooet of British Columbia (Turner 1987) and the Ka'apor of Brazil (Balée 1989).

Intermediates. — Without detailed systematic investigation of Witsuwit'en plant classification, the existence of intermediate plant groupings cannot be discussed in detail. Several possible intermediates may be present in Witsuwit'en plant classification (Figure 3). Some of these postulated intermediates are lexically labeled, while others are covert. Prickly plants or "thistles", *xwəs* or *kwəs* (hereafter *xwəs*), are spoken of as a group. These include devil's club (*Oplopanax horridum* [Smith] Miq.), the prototype *xwəscə* (or simply *xwəs*), prickly rose (*Rosa acicularis* Lindl.),

stinging nettle (*Urtica dioica* L.), the introduced weedy Canada thistle (*Cirsium arvense* [L.] Scop.), and perhaps *xwəs mi?*, tentatively identified as *Crataegus douglasii* Lindl. "We call all those thistles, rosebush, and so on, they're all *xwəs*" (LJG interview notes 10/29/86). These plants are referred to in conversation as types of *xwəs*:

"the *xwəs* with the pink flower... *tsetł yil*" [prickly rose]

"there is a *xwəs* that makes you itch. It's a green 'grass' on the hillside" [in reference to *hołts'ec* 'stinging nettles']. (LJG interview notes 10/14/87)

tl'oy 'grass', discussed above, may be an intermediate taxon rather than a "life form." We have here diagrammed it (Figure 3) as including *tl'oy*, the focal generic, as well as *χəχ c'ət'an* 'horsetail' as a second generic.

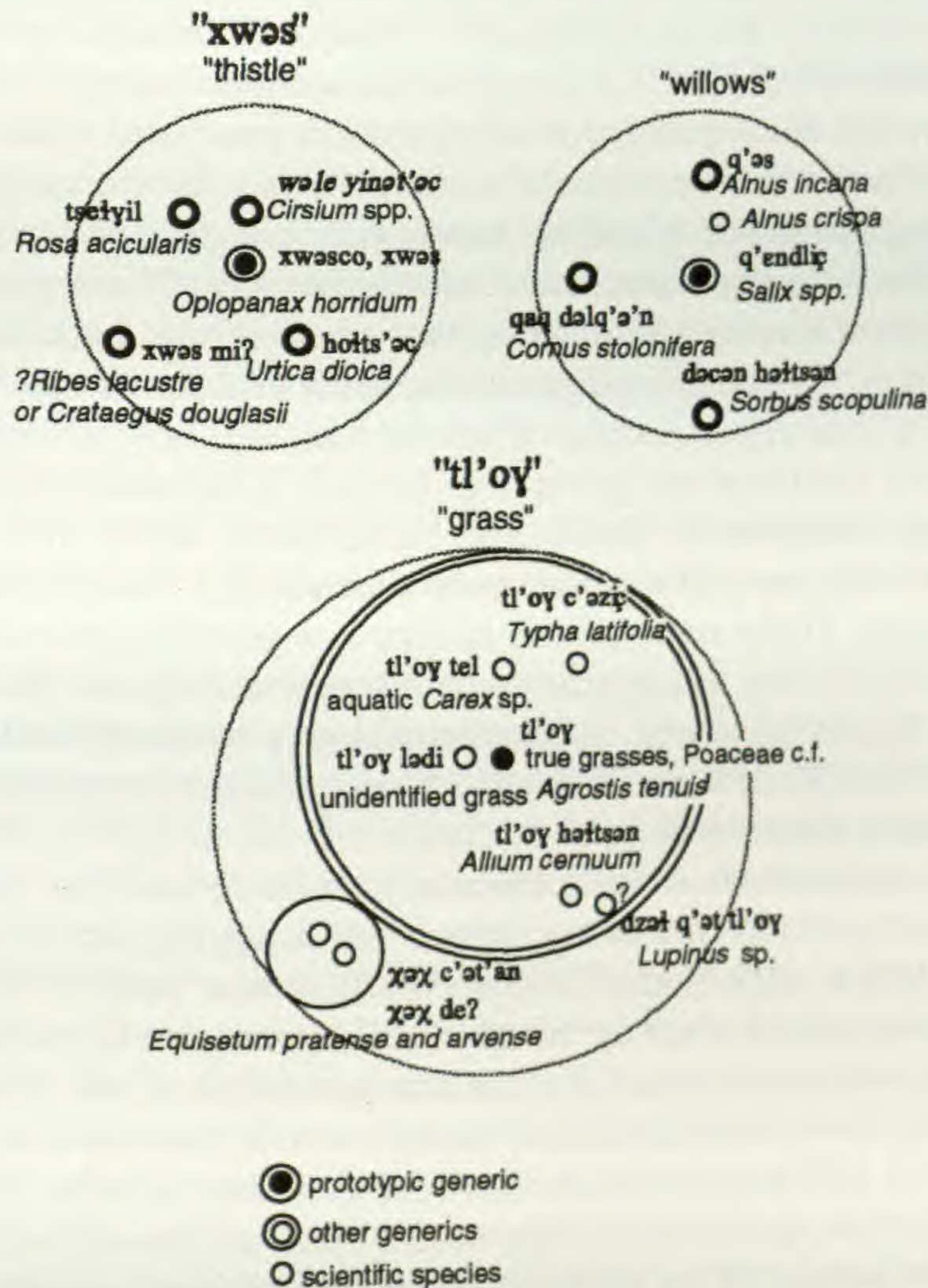


FIGURE 3. — Three Witsuwit'en intermediates, showing constituent generics and scientific species. The "thistle" and "grass" groups are overtly labeled in Witsuwit'en, while "willows" appears to be covert. The outline of the intermediate is shown in gray, while the included generics are shown with a black outline. The prototype of the intermediate is indicated by a solid black circle. Other scientific species are indicated with hollow circles. Witsuwit'en names are given in boldface type, and scientific names in italics.

A third potential intermediate is 'willow'. The English terms 'alder' and 'willow' may be used interchangeably by Witsuwit'en speakers to refer to species of *Alnus* and *Salix*, suggesting that they are perceived as similar. Witsuwit'en speakers take care to distinguish several shrubs with generally similar ecological habitats and habit, including alders (*Alnus incana* [L.] Moench and *A. crispa* [Ait.] Pursh), willows (*Salix* spp.), "red willow" or red-osier dogwood (*Cornus stolonifera* Michx.) and perhaps mountain ash (*Sorbus scopulina* Greene). The 'willow' intermediate may be a functional grouping in that all of these shrubs of similar stature are utilized for bark resources in the dormant season when they are leafless. As their properties and uses are not interchangeable, it is necessary to carefully observe and contrast their stem and bark characters to avoid collecting the wrong type of bark. Alder (*Alnus incana*) *q'əs* is distinguished by its inner bark which turns red when peeled (and was used as a dye); 'mountain alder' (*Alnus crispa*) *wəze* inner bark does not turn red. It is noteworthy primarily for the difficulty of walking through thickets of it on the mountainside. Willow (*Salix* spp., *q'endliç*) inner bark *q'eltay* remains white and is strong (it was used for cordage). When red-osier (*Cornus stolonifera*) is discussed for medicine, it is generally referred to as *qaq dəlq'ə'n* (lit. 'red surface'). Some speakers also refer to red-osier as *q'entsec*, similar to the term for willow, or *q'endliç*, when discussing its use in basketry. One elder also took care to contrast mountain ash (*Sorbus scopulina*) from 'willow' (i.e., *Salix* spp.) by bark characters. This is another plant whose bark is medicinal. It differs from 'willow' by the glossiness of the bark and by its strong, distinctive smell.

Other possible intermediate groupings include a 'kinnikinnik and relatives' group, containing kinnikinnik, *dəniç*, and bunchberry, *dəniç yez*, and possibly 'wintergreens' (*Pyrola* spp., *Orthilia* [*Pyrola*] *secunda* [L.] House, and *Chimaphila umbellata* [L.] Barton). These are relatively similar low growing ground plants which retain green leaves all year, though they contrast in that only the first two produce edible fruits. As discussed above, at least bunchberry seems to be named in coordinate fashion to kinnikinnik, and Kari (1978) suggests that a species of *Pyrola* (not determined) is also called *dəniç yez*.

Two other intermediates were spontaneously mentioned by one consultant, who was describing which flowering herbs were designated by the terms *ditnic kwə'n* and *łəc tsəkw mi?*. Andy George (SH interview notes 6/96) mused that *ditnic kwə'n* really named a whole "family" of flowering herbs, not just dandelion and heart-leaved arnica. For this speaker, the prototype of the group was "sunflower" (probably heart-leaved arnica): "sunflower is the real one." The second grouping included *Smilacina racemosa* (L.) Desf. and other similar herbs in the lily family which produce similar appearing berries "Lily-of-the-valley too, eh. As long as they're in that family." This appears to be a metaphoric expression of group membership in English, rather than a translation of a common Witsuwit'en speech form. The use of the term "family" or other terms for kin relationships has not been observed in Witsuwit'en discussion of plant names, although *yez*, 'little', 'woman's child' is used to indicate affiliation as discussed above.

The last proposed intermediate is a possible "poisonous plants" grouping.¹⁰ Two plants were spontaneously volunteered as poisonous after a discussion of some medicinal plants and Labrador tea: *dəni zic gus* (lit. 'corpse's cow parsnip')

(*Delphinium glauca* S. Wats.) and *wənyeni co* or *honyeni co* (lit. 'big killer'), This may be water hemlock (*Cicuta douglasii* [DC.] Coult. & Rose). Water hemlock is known locally for livestock poisoning. The Indian hellebore plant, *qunye*, is always mentioned as poisonous as well, and might be affiliated with such a grouping.

More systematic data collection would clarify the existence and membership of these and other intermediate groups among the Witsuwit'en. The Witsuwit'en intermediate taxa proposed in the present study are based on similar habitus, possession of spines or stinging hairs, and possibly on recognition of human and animal toxicity. Data from Turner (1989) suggests that there might be a number of such intermediate plant groupings, which would serve to order the plant domain for Witsuwit'en native speakers, as the groupings she has documented do for a variety of other Native groups in British Columbia.

Turner (1989) finds evidence of a large number of intermediate plant groupings based on a variety of morphological and utilitarian criteria. A 'spiny' group is reported by Turner (1989), Turner *et al.* (1983) for the Nitinaht, Lillooet, and Chilcotin, other British Columbia Native groups. The Chilcotin use a cognate (*kwes*) of the Witsuwit'en term *xwəs* to designate this group, which for the Chilcotin includes a species of prickly pear (*Opuntia*) but does not include devil's club (Turner 1989:98). Turner (1989:76) has also found evidence of a kinnikinnik and relatives grouping among the Thompson, which included kinnikinnik, wintergreens, false box, and twinflower. The Gitksan also seem to have such a group: the term for kinnikinnik is *sgantimi'yt*,¹¹ while prince's pine (*Chimaphila umbellata*), a relative of the wintergreens, and false box are both called *hissgantimi'yt* (lit. 'resembling kinnikinnik') (Johnson 1997).

LINGUISTIC ANALYSIS OF WITSUWIT'EN PLANT TERMS

Our linguistic analysis is based on a corpus of 108 distinct Witsuwit'en names for life forms, intermediates and folk generics.¹² The following types of words are found among this portion of the Witsuwit'en lexicon: nominal roots, prefixed nominal roots, noun compounds, deverbal nouns, other noun phrases, loans, and unanalyzable polysyllables. Many Witsuwit'en plant terms have a literal meaning (or "descriptive force," Hunn 1996) in addition to reference to a particular plant or plant group. Such plant names may describe appearance, scent, uses, or properties of the plant, or make metaphoric allusion to body parts or secretions.

According to Berlin (1992, Berlin *et al.* 1973), a generic is usually denoted linguistically by a single morpheme (a simple primary lexeme, i.e., one which is not analyzable, e.g., 'pine' or 'maple'). In our corpus, the majority, that is, 5 of 8 "life-form" terms are either monomorphemic nominal roots (e.g., *yin* 'sphagnum moss') or prefixed roots (e.g., *dəcən* 'large woody plant', < *də-* 'wooden' + *cən* 'wood, handle, frame'; *c'ət'an* 'plant, leaf', < *c'ə-* unspecified possessor + *t'an* 'plant, leaf'). Our clearest intermediate term, *xwəs* 'spiny plant', is also a monomorphemic nominal root. However, Berlin's prediction is false for the Witsuwit'en folk generics in our corpus: only 15 of the 99 folk generic names in our corpus are monomorphemic roots (n = 9) (e.g., *ts'o* 'spruce') or prefixed nominal roots (n = 6) (e.g., *dəyi'n* 'spiny woodfern').¹³

Compounds form the largest subclass of analyzable, non-loan plant terms (24

of 108 in the total corpus; 24 of 99 folk generics). Compounds are not employed above the folk-generic level of classification. Examples include *tsaləc qəkwa'n* 'beaked hazelnut' (lit. 'squirrel's box'), *dəni zic gus* 'tall larkspur' (lit. 'corpse's cow parsnip'), and *tsef yil* 'prickly rose' (lit. 'ax pack'). The next largest classes in our corpus (16 of 108 terms) are deverbal nouns (i.e., nouns derived from verb phrases) and other types of noun phrases (16 of 108 terms). All but one of the deverbal terms are folk generics (e.g., *qaq dəlq'ə'n* 'red osier', lit. 'surface is red'); among the life forms, only *nət'ay* 'berry', lit. 'it is ripening', is deverbal. Non-deverbal noun phrases are nouns modified either by (a) a prenominal postpositional phrase (n = 3, e.g., *dzəf q'ət tl'oŷ* 'lupine': *dzəf* 'mountain,' *q'ət* 'on', *tl'oŷ* 'grass'), (b) a postnominal adjective (n = 10, e.g., *ts'o tsən* 'balsam': *ts'o* 'spruce', *tsən* 'smelly'), or (c) what we have tentatively identified as a prenominal adverb (n = 2, e.g., *dəx ye* 'black tree moss': *dəx* 'above', *ye* 'hair').

Fourteen of the 108 plant terms in our corpus are unanalyzable polysyllables; e.g., *tsəftse* 'high bush cranberry', *c'agu* 'white lichen', *qunye* 'Indian hellebore'. While a few of these may have one or more identifiable morphemes (e.g., *cən* — 'wood, handle, frame', as in *cəndu* 'lodgepole pine'), it is not possible to provide a literal translation or morphological analysis of these terms at this time. Such terms are possibly originally deverbal; alternatively, they could be loans from other languages.

The majority of plant terms in our corpus (62 of 108 terms; 61 of 99 folk generics) have a literal meaning (descriptive force) in addition to referring to a member of the plant classes we have identified. These literal meanings are either 'descriptive', naming some characteristic shape, smell, color, location, or other property, or 'functional', referring to a use of the plant. Some plants are also named in a metaphoric manner or by allusion to animals. Nearly all plant terms with literal meanings are found at the folk generic level, the sole exception being the deverbal life form *nət'ay* 'berry' (lit. 'it is ripening').

Two monomorphemic folk generic terms are polysemous, describing some aspect of the appearance of the plant: *ts'əx* 'hat', 'mountain juniper'; *təyəx* 'together', 'saskatoon' (the berries grow in clusters). Most noun phrase generics are descriptive: e.g., noun + adjective, *tl'oŷ təl* 'sedge' (lit. 'wide grass'); noun + adjective, *xwəs co* 'devil's club' (lit. 'big thorns'); postpositional phrase + noun, *yəntəmi?* 'low bush blueberry' (lit. 'berry among the land'). Deverbal descriptive terms include *hofts'ec* 'nettles' (lit. 'it stings'), *wəle yinət'əç* 'Canada thistle' (lit. 'it sneaks into hands'), *yən tədəlq'ə'n* 'strawberry' (lit. 'red among the land'), *bə?əl yez wəni* 'yarrow' (lit. 'it has little conifer branches'), and *dəcən həltsən* 'mountain ash' (lit. 'stinking wood') (Mountain ash has a very characteristic bitter almond odor when the bark is cut).

Some descriptive plant terms refer metaphorically to body parts, corpses, or bodily secretions: *dəx ye* 'black tree moss' (lit. 'hair above'), *ts'əlto mi?* 'rosy twisted stalk' (lit. 'tears berry'), *dəni zic cac'əsgəkw* 'puffball' (lit. 'corpse's navel'), *təc tsəkw mi?* 'false Solomon's seal' (lit. 'dog penis berry'), *cəlqə yiz* 'mountain lady slipper' (lit. 'boy's testicles') (in allusion to the bulbous sac-like form of the flowers), *tsa dzəq¹⁴* 'wintergreen, single delight' (lit. 'beaver ear') (in reference to the shape of the leaf). Folk generics which seem to be named more for function than for some inherent characteristic include deverbal *həlq'ət bən* (lit. 'swelling pre-

ventative'), as well as the polysemous roots *?aç* (*cən*) 'Douglas maple' (lit. 'snowshoe (wood)') and *ts'əy* 'boat', 'cottonwood'.

Plant names which allude to animals suggest associations of the animal to the plant, ecologically or as food, or types of metaphoric association; e.g., beaked hazelnut, *tsaləc qəkwə'n* (lit. 'squirrel's box'). (Red squirrels [*Tamiasciurus hudsonicus*] harvest large quantities of hazelnuts and store them for winter provisions.) Similarly, the name for yellow pond lily leaves, *dəlkw'aχ nełdəc* (lit. 'frog blanket'), indicates an ecological association with wetland habitat, and horsetail, *χəχ de?* (lit. 'goose food'), alludes to an ecological and trophic association with geese. Other plant names which incorporate animal names may do so to indicate the non-edibility or medicinal properties of plants so named. Examples include *səs mi?* 'black twinberry' (lit. 'black bear's berry') and *c'ətsət mi?* 'snowberry' (lit. 'ruffed grouse's berry'), both berry bearing shrubs whose fruits are not eaten, but whose bark is used for medicine, and *detsan qə gət* (lit. 'crow's old shoe') or *detsan ?əl* (lit. 'crow's conifer needles') 'common juniper', an important medicinal plant.¹⁵ Other names of this general form are applied to berries which are not important food sources (and may be considered inedible); e.g., *dəlkw'aχ mi?* 'wild black currant' (lit. 'frog's berry'), not locally considered edible; 'bunchberry' *cəniç mi?* (lit. 'fisher's berry')/ *guziç mi?* (lit. 'gray jay's berry').¹⁶ Another way of indicating inedibility may be by association with corpses: tall larkspur is *dəni zic gus* (lit. 'corpse's cow parsnip'); this is one of the plants specifically mentioned as poisonous and which is not to be eaten or used for medicine.

Seventeen of the 108 plant names in our corpus are analyzed as loanwords from other languages. Source languages include Gitksan, Carrier, Cree, and French. Roughly two thirds of these loans (12 of 17) are borrowed from Gitksan, a Tsimshianic language spoken immediately north and west of the Witsuwit'en. Three plant names are very likely borrowed from Carrier, an Athapaskan language spoken to the south and east of Witsuwit'en. The remaining 2 loans come from French and Cree.

Speakers of Gitksan and Witsuwit'en have had long contact (Rigsby and Kari 1987, Mills 1994). For many of the plant names which are shared by Witsuwit'en and Gitksan (Table 4), linguistic and/or biogeographic reasons can be given for positing a direction of borrowing. However, for other names, the language of origin is not immediately obvious. Witsuwit'en plant terms for cedar/cedar bark, fireweed, berry (in general), crabapple, a variant term for subalpine fir, and possibly hemlock/hemlock cambium are Gitksan in origin.¹⁷ The names for red cedar (*səmgən*) and cedar bark (*hət'əl*), and perhaps the uses as well, were most likely learned from the Gitksan. Red cedar does not grow in areas occupied by Athapaskan speakers except for the now extinct Tsetsaut and the northwestern corner of the territory of the Witsuwit'en, while it is very abundant in the territory occupied by Tsimshianic speakers, including the Gitksan. *gan* is the standard term for 'wood, tree' in Gitksan, Nisga'a, and Coast Tsimshian, while in Witsuwit'en this term occurs only in *səmgən* 'red cedar' (<Gitksan *sim gan*) and in the personal name *to? əmgən* (Gitksan morphemes translated as 'timber avalanche'). (As noted above, *dəcən* is the usual Witsuwit'en term for 'wood, stick, tree'.)

The terms for 'fireweed' in Gitksan (*haast*), Witsuwit'en (*χas t'an*), and Carrier (*xas*) all have a phonological similarity which is not likely due to chance. The

TABLE 4.— Witsuwit'en Botanical Terms Shared with Gitksan

Latin Name (English Name)	Witsuwit'en Name	Gitksan Name
<i>Abies lasiocarpa</i> (subalpine fir)	hoʔoqs	ho'oxs
<i>Apocynum androsimaeifolium</i> (spreading dogbane)	lex	sganlekx
<i>Aralia nudicaulis</i> (wild sarsaparilla)	sgənistl'es	*
<i>Epilobium angustifolium</i> (fireweed)	χas	haast
krumholz forms of <i>Abies lasiocarpa</i> and perhaps <i>Tsuga mertensiana</i> / <i>Juniperus communis</i> ("mountain juniper" / common juniper)	ts'əχ	ts'eex
<i>Lycopodium selago</i> ? (fir clubmoss)	hatəc	xaadax
<i>Nuphar polysepalum</i> (yellow pond lily)	χε† t'ats	gahldaats
<i>Prunus pensylvanica</i> ('red wild cherry')	snəw	snaw
<i>Prunus pensylvanica</i> / <i>Prunus virginiana</i> (bird cherry / chokecherry)	smits'oq	mi ts'ook
<i>Pyrus fusca</i> (Pacific crabapple)	məlqs	milkst
<i>Sambucus racemosa</i> (red elderberry)	luts	sganloots'
<i>Thuja plicata</i> (western redcedar)	səmgən	sim gan
<i>Vaccinium oxycoccus</i> (bog cranberry)	miʔo	mi'oot
cedar, cedar bark / cedar bark	het'al	hat'a'l
pine cambium	q'əniç	gan hix, ganix

Botanical nomenclature after Hulten (1968).

Term from Jenness (1943); reelicited 1996 by S. Hargus

* Term not collected in Gitksan, but Witsuwit'en consultant stated the term to be in the "Hazelton language" (field notes, July 1992) (the root *sgan* is a Gitksan term meaning 'plant'). An unrelated Gitksan term *maa'ytwahl smex* has been recorded by Johnson-Gottesfeld for *Aralia nudicaulis*.

Gitksan term has cognates in other Tsimshianic languages (Nisga'a, Tsimshian *haast*) whereas the names in Sekani (*kahgùs*, *kahgòs*, and Dena'ina (*niłdghuligi*, *tl'ik' desq'a*, *ts'ik' desq'a*, *ch'deshtleq'a*) are completely different from the Witsuwit'en, suggesting that the Witsuwit'en and Carrier terms originate in the Tsimshianic languages.

In Witsuwit'en there are two words for 'berry', *miʔ* and *nət'ay* (lit. 'it's ripening'). *nət'ay* is less common as the spontaneous translation of 'berry', and *miʔ* alone is used in proper nouns (berry names). Central Carrier also uses a related word, *mai*, for 'berry'. Apparently, both Witsuwit'en and Carrier terms were borrowed from Gitksan *maa'y*, cognates of which are also used in Nisga'a and Tsimshian.

Witsuwit'en *məsdzu* 'hemlock cambium' appears to be derived from the Gitksan terms *maas* 'bark' and *xsuu'u* 'hemlock cambium'. All Witsuwit'en speakers who discussed hemlock 'cambium' as a food mentioned that it was learned about or obtained in trade from Gitksan or Tsimshian people, and one elder stated that the name *məsdzu* was from Gitksan.

Like other Canadian Athapaskan languages, there are numerous loan nouns from French into Witsuwit'en in non-plant names. Only two such loans occur in plant names. Labrador tea *łədi məsgic* is a compound consisting of two loan words: French *le t+* 'the tea' and Cree *maske:k* 'swamp, muskeg' (Ellis 1983). This suggests that its use as a beverage may have been learned from early French and M+tis fur

traders, possibly through the Babines or Stuart Lake Carrier. The Witsuwit'en name for *Aquilegia formosa* (red columbine) is *l̥suc* (<French *le sucre*, 'sugar'); *l̥suc* also means 'sugar' and is therefore polysemous in Witsuwit'en.

While linguists agree that Carrier and Witsuwit'en are separate Athapaskan languages, exactly how closely related they are is a matter of debate. Story (1984) groups Witsuwit'en and Carrier into an Athapaskan subfamily, Babine-Carrier, of relatively shallow time depth (approximately 300 years.). On the other hand, Kari and Hargus (1989) view Witsuwit'en and Carrier as no more closely related than other adjacent northern Athapaskan languages spoken in the interior of Alaska (which are known to have been neighbors for considerably more than 300 years). Of the 108 plant terms in our corpus, 31 are shared with Carrier. The phonological similarity of these shared terms could be due either to borrowing or to inheritance from a common ancestor, either Proto-Athapaskan or a more immediate ancestor. Nine of these shared terms have widespread cognates in the Athapaskan family and are clearly inherited from Proto-Athapaskan (PA); e.g., 'alder' (Witsuwit'en *q'əs*, Carrier *k'əs*), 'spruce' (W. *ts'o*, Carrier *ts'u*), and 'kinnikinnik' (*dəniç* in both languages). Fifteen of the 31 shared terms have at least one morpheme that can be reconstructed for PA. With some terms, Carrier and Witsuwit'en have undergone the same semantic shift, e.g., PA **dəge* 'berry' > W. *dəgi* 'black huckleberry', C. *dəje* 'huckleberry'; PA**da'ŋ(ə)*, **də'ŋ(ə)* 'spring season' > W. *χəχ de?*, C. *xohdai?* 'horsetail' (species). The remaining seven of 31 plant terms shared with Carrier are of uncertain etymology: e.g., 'highbush cranberry' W. *tsəłtse*, C. *tsəłtse tsən*. We hypothesize that three of the latter set are borrowings from Carrier into Witsuwit'en: 'juniper' *detsan ?anqət*, cf. C. *datsan ?angət*; W. 'cattail' *tl'oγ c'əziç*, cf. C. *tl'oγaził*; 'red-osier dogwood'; W. *q'entsec*, cf. C. *k'entsi*, since these plants are all known in Witsuwit'en by more than one name (see below and Table 1). However, we suspect that more than these three terms shared by Witsuwit'en and Carrier are loans from one language into the other. The matter requires a survey of other Athapaskan and non-Athapaskan languages in the area.

Nine generics were labeled by more than one term. Some of these we consider true synonyms, as they were consistently referred to by more than one name by the same speaker, e.g., red-osier dogwood (two distinct terms and several variants of the first term), mountain-ash (four terms encountered), bunchberry (three terms collected), and cinder conk (two unrelated terms used). A variation in naming which can be used for contrast is shown for devil's club, which is usually referred to as *xwəs*, the unmarked prototype of the "*xwəs*" class, but can be distinguished as *xwəscə* (lit. 'big thorn'). Other terms appear to reflect idiolectal variation, with only one term used per speaker, e.g., 'mountain lady slipper' *dəłtse ɣil*, *cəłqe ɣiz*, 'cattail' *tl'oγ zi*, *tl'oγ c'əziç*.

COMPARATIVE ANALYSIS

Changes in lifestyle and language retention may affect the retention of botanical lexicon and knowledge of the indigenous classification system (Berlin 1992, Waddy 1982). The strong bias toward economic plants, and the poor awareness of non-economic plants evident in Johnson-Gottesfeld's research is probably a result of these factors, as well as a consequence of her research emphasis on plants as

resources. Hargus's linguistic research has increased the proportion of names for unutilized plants in our corpus.

The degree to which this emphasis on naming and classification of plants of potential utility would have been present in the aboriginal system prior to contact cannot be determined at this point. Johnson-Gottesfeld has found that among the Gitksan — neighbors to the north and west of the Witsuwit'en with similarities in environment, culture, and history — only those plants of high salience and ecological importance or utility tend to be named. The Gitksan also underdifferentiate groups like mosses, fungi, and graminoids, subsuming them in classes which may be analyzed as "empty life forms." Likewise, Sahaptin (Hunn 1982) and Chewa (Morris 1984) fail to recognize or name many species which are not utilized or otherwise salient.

Relationship of "Life Forms" to Partonomy. — Clément (1995) has analyzed life forms for the Montagnais in terms of 'partons' (plant organs) which are in turn related to utilitarian factors. Such a life form will contain a core of plants with the diagnostic parton and others related by prototype-extension to this core. The Montagnais life form 'tree' (*mishtukuat*) is designated by the same term as 'wood' (except that 'tree' is animate and 'wood' inanimate in gender). 'Tall shrubs' (*shakua*) are woody plants which possess 'double bark', useful in medicine; eight of 12 forms so classed have this 'double bark', an outer bark layer and an inner layer, often considered to be medicinally efficacious. Members of the small shrub class (*atishja*) typically possess edible fruits. Low herbs (*mashkushua*) include a subgroup called 'leaves' (*njphsha*), which have leaves useful for medicinal purposes, and another subgroup called 'root' (*ushktipj*), with medicinal roots. (The remainder of this heterogeneous class is considered to be residual.)

Witsuwit'en "life forms" can also be analyzed in terms of relationship of diagnostic and useful partons. *dacən* implies both woodiness and medicinal properties of the bark. *mji?/nət'ay* 'berry' is roughly equivalent to the small shrub class of the Montagnais, except that it is cross-cutting for the Witsuwit'en, overlapping both *dacən* and *c'ət'an*. *c'ət'an* could be said to be named with reference to partonymy also, as this term can be glossed 'leaf' as well as 'plant'. However, this Witsuwit'en grouping lacks a strong utilitarian component. The empty class *c'əndec* 'flower' is obviously conceived with reference to the plant parton 'flower'; for the Witsuwit'en it is negatively associated with utility and is clearly a residual class.

Utilitarian Factors. — Brown (1977, 1985, 1995), Berlin (1992, Berlin *et al.* 1973), and Atran (1985, 1990) consistently argue for divorcing ethnobiological taxonomy from utilitarian characteristics of biological species. They argue instead that "general purpose" (more or less purely morphological or perceptually based classifications of biota) taxonomies can be meaningfully elucidated in human cultures as separate from various "special purpose" classifications based on the use of species for food, medicine, or in symbolic systems. Others argue that though "general purpose" taxonomies may be elicited, they may not reflect what is most culturally relevant or significant (Randall 1976, 1987; Morris 1984; Hunn 1982).

...although we can accept that there is no necessary one-to-one relationship between utility and nomenclature, nevertheless it is important to recognize

that functional criteria are intrinsically linked to taxonomic ordering. As I have tried to indicate above, many Chewa life-form categories cannot be understood in purely morphological terms, and functional categories ... also have a taxonomic relevance.... a true understanding of the nature of folk classifications, both in a culturally specific context and in terms of the evolution — the 'encoding sequence' — of life form categories, demands that we incorporate into the analysis functional criteria. As anthropologists we should be concerned with systematically exploring the relationship between folk classifications and other aspects of cultural life. To view folk taxonomies simply as taxonomies, abstracted from utilitarian, ecological and cultural concerns, limits our understanding of how human groups related [sic] to the natural world (Morris 1984:58-59).

...Brown arbitrarily restricts his [life form] analysis to a small set of folk biological concepts prejudged to be universal.... Consequently, we are left in ignorance of the welter of utilitarian and ecologically defined suprageneric taxa which most peoples rely on to organize their knowledge of the natural world.... Sahaptin conversation is full of reference to such general classes of plants as *xnit* 'foods which are dug' and *tmaanit* 'foods which are picked' (Hunn 1982:839).

The argument has involved both the presumed actual structures involved in storage and retrieval of relevant information regarding plant identity, and issues such as what is legitimately a taxonomy (cf. Wierzbicka 1984) versus other types of classification. Issues such as transitivity (Waddy 1982; Randall 1976, 1987) and whether classification of "living kinds" differs in fundamental ways from that of cultural artifacts (Atran 1985, 1990) are central:

This intrusion of practical considerations into the referential meaning of life forms is also anomalous from the taxonomic perspective in that it divides species that exhibit strong morphological resemblances while uniting others that are morphologically dissimilar (Hunn 1982:838).

Berlin suggests that a life-form generally contains a fairly large number of named subdivisions. However, the internal differentiation of a taxon may not correlate with the salience that taxon has in local thinking.... A second difficulty with the concept of "life form" is that some taxonomic categories of this general order do not in fact coincide neatly with obviously distinctive groups of fauna or flora.... Here the polysemous nature of terms applied in many languages to certain taxa which would appear to constitute legitimate "life forms" ... suggests that these taxa may be defined as much by cultural evaluation (technological utilization, dietary and culinary status, economic and ritual significance) as by their objective biological characteristics (Bulmer 1974:23).

Atran (1990) suggests that children spontaneously form natural object concepts — including life forms and folk generics — by an innate cognitive process, regardless of the potential uses of plants and animals. Thus ethnobiological classi-

fication is fundamentally independent of utilitarian factors.

Although this is an appealing argument, we suggest that utility of plants may well be incorporated into classification schemes for plants, and that categories such as "foods" or "economic plants" cannot be separated from a general classification of plants. Johnson-Gottesfeld's experience suggests that in families which engage directly in subsistence activities, children learn the economic and utilitarian aspects of plants as soon as they become aware of the plant world. Johns (1990) suggests that there is a period of time after weaning when young children are particularly receptive to learning new foods, and are most likely to sample different plants in their environment. This leads to a peak in accidental poisonings of young toddlers, but might also make children of this age very impressionable regarding the potential edibility of plants in the environment, if they are in contact with the plant world and are among adults who regularly harvest plants for food.

It is true that not all types of use are likely to be learned equally early, nor, indeed, by all members of a given society (cf. the study of Tzeltal children's ethnobotanical knowledge by Stross 1973, cited in Berlin 1992). Medicinal uses of plants may be learned much later, and may involve specialization of skills and knowledge. However, important edible and poisonous plants are likely to be learned by children, concurrently with their use or avoidance, as soon as they are mobile and can talk.

Bulmer (1974:12-13) explores the relationship between obvious utility and plants and animals named by the Kalam of New Guinea:

"The recognition of both the objective and subjective importance of ecology to human communities throws light on the problem of classification and naming of apparently useless animals and plants. If one sees individual plant and animal categories solely in their direct relationships to man, there are many which appear irrelevant, neither utilised nor noxious. However if the relationships between different kinds of plants and animals are recognised as relevant, then a great range of additional forms will very usefully be identified and classified...."

My final introductory point is that it is this ecological perspective which requires systems of classification to recognise basic categories, reflecting discontinuities in nature "in the round", multidimensionally, systematically relating morphological discontinuities with discontinuities in behaviour, as well as direct cultural significance."

Some features of the naming of edible or cultivated plants versus non-utilized or wild plants by Amazonian peoples can also be interpreted as coding utility within the plant taxonomy. In many cultures, cultivated plants *are excluded from the life forms* in which their non-cultivated congeners are included, clearly showing a utilitarian component (in a negative sense) to for the Ka'apor "life-forms" (Balée 1989).

The Ka'apor label folk generics which are wild or unutilized with an animal name coupled to the name of a cultivated form (Bal+e 1989). This indirect coding of disutility by use of animal names may be seen in the Witsuwit'en names for black twinberry and snowberry discussed previously. The Chewa of Malawi use

animal names to signal the inedible or dubious status of mushrooms (Morris 1984). Turner (1975) reports that in Nuxalkmc (Bella Coola), the literal translation of devil's club (with inedible berries and a rhizome that may be used medicinally) is 'grizzly bear's highbush cranberry'. Gitksan terms for several non-edible berries also contain animal names: *sgan maa'ya gaak* 'raven's berry plant' is the name for black twinberry, used for medicine; *maa'ytwahl smex* (lit. 'bear's berry') refers to *Aralia nudicaulis*, with inedible berries that may be used medicinally (Johnson 1997). *mjaa'ya smex* (lit. 'bear's berry') or *maa'y litisxw* (lit. 'blue grouse's berry') are alternative names for queen's cup (*Clintonia uniflora*), regarded as poisonous (Johnson 1997). The term *mi' ganaa'w*, 'frog berry' for the edible cloudberry *Rubus chamaemorus* is an exception.

An intriguing feature of northwestern North American plant classification is the direct coding of utility in some tree species. In Gitksan, the names of many tree species mean "good for ____" (Johnson 1997). Cottonwood (*Populus balsamifera* L. ssp. *trichocarpa* [Torr. & Gray] Hult.) is *am m'al*, lit. 'good for canoe'. Western red cedar is either *sim gan*, lit. 'real wood', 'tree', or *am hat'a'l*, lit. 'good for cedar bark'. In Witsuwit'en, cottonwood is *ts'əy*, polysemous with 'canoe', and maple (*Acer glabrum* Torr. ssp. *douglasii* [Hook.] Wesmael) is *?aç*, polysemous with 'snowshoe', or *?aç cən* (lit. 'snowshoe wood'). Turner (1987) reports several such examples from Lillooet including terms for 'ocean spray' (*Holodiscus discolor* [Pursh] Maxim.), lit. 'digging stick plant', and 'bitter cherry' (*Prunus emarginata* [Dougl.] Walp.), lit. 'bitter cherry bark', important for imbricated designs in Salish coil basketry.

Shallowiness of hierarchy. — The uneven development of "life form" classes, coupled with the irregular presence of intermediate taxa and the rarity of folk specifics indicates a shallow and weakly developed hierarchic structure in Witsuwit'en ethnobotanical classification. As mentioned above, this situation has been reported for other folk biological classification systems such as Sahaptin (Hunn and French 1984). Turner (1987:77), describing the overall ethnobotanical classification systems of the Thompson and Lillooet, was moved to remark:

"A number of the major categories are at least partially defined by utilitarian, rather than solely morphological features. These categories are not necessarily mutually exclusive. Most are residual, having a few highly salient named terminal taxa and many recognizably distinct, but unnamed, members. Most of the named taxa have, or had in the past, a high level of cultural significance, particularly as foods, [technological] materials or medicines."

Had she confined her analysis to taxa which did not overlap and were based only on morphological and perceptual differences, she would have missed much of the structuring of the botanical domain by speakers of these languages. Although loose hierarchy is apparent in the taxonomies of these groups, the structure is much more fluid and less systematic than the classic hierarchical structure idealized by Berlin *et al.* (1973). In a later paper investigating intermediate level groupings, Turner (1989:71) comments:

"Hunn (1982), Randall (1976) and other researchers...have presented data

that contradict or at least render less certain the contentions of Berlin and his colleagues that ranked, hierarchical folk biological classifications systems based on perception of overall morphological similarities are universal and are the only valid framework for folk taxonomies. Classes based on utilitarian features, and relationships through affiliation, association and "sphere of influence" rather than stringent hierarchical inclusion are perceived by many researchers to play a significant role in folk biotaxonomies...data presented in this study supports the views of Hunn (1976, 1982) and others that relationships based on affiliation and utility are important components of plant classification systems."

In Witsuwit'en ethnobotanical classification, hierarchy is weakly developed, and relationships between taxa based on inclusive relationships are poorly developed. Only one polytypic folk generic has been described to date. The postulated major life forms may overlap, as *mi?* with *dəcən* and *c'ət'an*. Intermediate groups appear to exist, but their relationship to "life forms" is not yet clear. Prototypy seems applicable to five of the postulated seven intermediate groups described. The "coordination" model of Hunn and French (1984) may better describe the ethnobotanical classification of the Witsuwit'en than hierarchical relations, in that folk generics may be seen to form clusters or groups based on affiliation rather than inclusion.

SUMMARY AND CONCLUSIONS

Although this study is not exhaustive, plants named by the Witsuwit'en appear to be primarily those of high utility and/or of ecological and perceptual salience. We have collected the names of 91 plant classes which cover the low to mid elevation flora of the Bulkley River drainage, where the Witsuwit'en with whom we have worked primarily have lived and carried out traditional hunting, trapping, fishing, berry picking, and other subsistence activities. There are certainly more than 91 vascular plant species in the Bulkley Valley and surrounding area. A preliminary estimate of the vascular plant flora of the Bulkley River drainage, including high elevation sites, is 900-1000 species (Jim Pojar, British Columbia Forest Service, personal communication 1997); compared to 85 Witsuwit'en named vascular plant classes. Although many types of low salience and economic importance are probably subsumed in 'grass' and 'flower', some vascular plant species are simply unnamed, at least by the modern Witsuwit'en. This is similar to the pattern reported for other foraging peoples such as the Sahaptin (Hunn 1982) of the Columbia Plateau, who name 213 vascular taxa of the approximately 2000 vascular plant species which occur in their traditional territory, or roughly 10%.

Plants which are named include all tree species (in the English sense), most large shrubs, plants which produce edible fruit, plants which are used for medicine, plants which are eaten, plants which have technological uses, and poisonous plants. Underdifferentiation is characteristic of vascular plant groups like grasses, sedges and rushes, small herbaceous plants, and flowering herbs. Mosses and fungi are also underdifferentiated, having generally low salience and utility, and are

subsumed in two "empty" life forms. One folk class of moss, *yən tl'ax yəl* or more commonly *yin* (*yəl*), 'diaper moss', is differentiated because of its functional importance. Fungi in general are lumped as *c'ebedzəq*. A single type of technological and medicinal use is called either *dəc'əc'əsts'o?* 'burl' or *tl'eçtse* 'fire carrying fungus', and the uncanny puffballs are called *dəni zic cac'əsgəkʷ* (lit. 'corpse's navel'). Whether they are considered types of *c'ebedzəq* has not been determined. Similarly, the position of *dəx ye*, 'black tree moss', conspicuous arboreal hairlike lichens used as tinder, with reference to more inclusive classes has not been determined.

As noted, Witsuwit'en major plant classes or "life forms" include utilitarian factors in their definition. In this respect they are similar to those of the Thompson and Lillooet (Turner 1987) and other Northwest North American Indian groups. "Empty" or "monogeneric life forms" are found among the major plant categories, i.e., 'grass', 'moss', 'mushroom', and 'flower'. Hierarchical organization is shallow, and higher level classes may cross-cut one another, a situation also reported by Hunn (1982), Randall and Hunn (1984) and Turner (1987, 1989).

Our findings regarding Witsuwit'en plant classification may be influenced by selective loss of detail of less salient or economically important plants as a corollary of extensive changes in life style and culture contact in the past 100 years. Berlin (1992) and Waddy (1982) suggest that the low level of specific taxa could be caused by this type of cultural erosion, though Hunn (1982) argues cogently that this is unlikely for the Sahaptin. Memory ethnography introduces some biases; elders sometimes report that they don't know or can't remember the name of a specific plant, or what plant was used for a particular purpose, but that their grandmother would have known. It is possible, for example, that more wildflowers once had specific names. However, Morris (1984) in a traditional Malawian population, reports that conspicuous flowers without uses are neither named nor apparently recognized, so this may not be an artifact of information loss. Variability of plant knowledge within the culture combined with sampling bias also influences reported patterns of naming and classification (c.f. Gardner 1976; Hays 1974; Ellen 1993; Berlin 1992). Sometimes errors in plant reference can be detected which derive from learning of plant names and uses only from hearsay, without having had the experience of gathering the plants in question. Such inaccuracies cannot be corrected if no elders remain who have been shown the correct plants or gathered them themselves.

The nomenclatural patterns of the Witsuwit'en seem consistent with those of other foraging peoples with respect to the low level of folk specific differentiation. This is true even with polytypic genera such as *Rubus* and *Vaccinium*. One noteworthy feature of the Witsuwit'en plant lexicon is the relatively high proportion of terms, 58%, with some sort of descriptive meaning in addition to their referential function.

A significant number of Witsuwit'en plant terms are shared with the neighboring Tsimshianic language Gitksan. Most of these terms appear to have been borrowed into Witsuwit'en from Gitksan, but at least three terms appear to have gone in the opposite direction. Borrowed plant names exhibit no clear biogeographic pattern, except for cedar/cedar bark, red elderberry, and crabapple, which are predominantly coastal. Turner (1974) reports a similar occurrence of loanwords

of Bella Bella origin in Bella Coola (Nuxalk) plant names.

As plant foods were trade items among these groups and also prominent in the feast hall, it is likely that the occurrence of plant loanwords reflects the shared heritage of trade and mutual feasting in the Northwest Coast area.

The significance of postulated loan words between Carrier and Witsuwit'en is not entirely clear; possibly long-distance trade relations have also encouraged exchange of plant knowledge and terms between these two groups. Shared terms include a number of common trees and shrubs used for medicinal purposes, plus some terms for herbaceous plants which may be used medicinally or not.

ACKNOWLEDGEMENTS

We would first like to acknowledge all of the Witsuwit'en elders and speakers who have shared their knowledge with us and been our teachers during this research. These include the late Madeline Alfred, Katherine Arsenault, the late Charles Austin, Margaret Austin, the late Mary Ann Austin, Mabel Forsythe, Andrew George, Leonard George, Joe George, George Holland, Alfred Joseph, Cecile Lapalme; the late Bazil Michell, Doris Rosso, Josephine Michell, the late Alfred Mitchell, Jenny Mitchell, Augustine Morris, Roy Morris, Lizette Naziel, Pat Namox, Lucy Namox, Louise Pierre, Doug Tait, Elsie Tait, Sara Tait, Tommy Tait, Christina William, and Margaret Williams. We would like to acknowledge the assistance of Alfred Joseph and Dora Wilson, who checked transcriptions and glosses of botanical terms. We would also like to acknowledge the Gitksan-Wet'suwet'en Education Society, the Kyah Wiget Education Society, the Gitksan-Wet'suwet'en Tribal Council, and Office of Wet'suwet'en Hereditary Chiefs for their support and encouragement during this research.

Johnson-Gottesfeld would like to acknowledge financial support by the Gitksan-Wet'suwet'en Education Society, the Kyah Wiget Education Society, NNADAP (funding for the Gitksan-Wet'suwet'en Traditional Medicine Program), and the Secretary of State (Canada) (funding for the Plant Curriculum Project of the Kyah Wiget Education Society), the Canadian Circumpolar Institute (fieldwork funding 1992-1995), and the SSHRC (doctoral fellowship 1994-1997). She would also like to thank Witsuwit'en translators Doris Rosso and Cecile LaPalme, Gillian Story and Bruce Rigsby for assistance with linguistic analysis; Gillian Story, Gregory Forth, C. Roderick Wilson, and Nancy J. Turner for helpful discussions and manuscript review; and Dale H. Vitt for determination of the sphagnum used for diapers.

Hargus gratefully acknowledges financial support for linguistic research which was provided by the National Science Foundation (OPP 9307704).

NOTES

¹Witsuwit'en is a dialect of the Babine/Witsuwit'en language, which is spoken in the Bulkley Valley, Babine Lake, Takla Landing, Burns Lake, and François Lake areas of northwestern and north central British Columbia (Kari and Hargus 1989). Wet'suwet'en is the local spelling of the name, and is the spelling which Johnson-Gottesfeld has used in previous publications. The Witsuwit'en language is distinct from Carrier, a contiguous language

spoken to the east and south (Kari 1975; Story 1984).

²Translators for this research were Doris Rosso and Cecile LaPalme.

³Ellen (1993) discusses in detail the characteristics of a true taxonomy which is a hierarchical structure organized by relations of class inclusion. Ellen rejects the universality of true taxonomy in ethnobiological classification, and argues that, for the Nuaulu at least, attempts to force their classification of biological forms into a taxonomic model distorts the characteristics of that system. We have therefore chosen to use the more neutral terms "classification" and "class" in this paper rather than "taxonomy" and "taxon," except where true taxonomic classification is meant.

⁴Witsuwit'en words are transcribed using standard phonetic symbols as indicated below, with the exception of [g], which represents a voiceless unaspirated palatal stop.

Consonants:	labial	alveolar	palatal	labiovelar	uvular	laryngeal
voiceless unaspirated stops	b	d	g	gw	g	
/affricates		dz dl				
voiceless aspirated stops	p	t	c	kw	q	
/affricates		ts tʃ				
glottalized stops		t'	c'	kw'	q'	ʔ
/affricates		ts' tʃ'				
voiceless fricatives		s ʃ		xw	χ	h
voiced fricatives		z l	y	w	ʁ	
nasals	m	n				
Vowels:	front	central	back			
high	i		u			
mid	e	ə	o			
low	ɛ	a				

⁵A possible exception is black spruce. For most modern Witsuwit'en, both *Picea mariana* and *Picea glauca* x *engelmannii* are called *ts'o*. However, a distinct term for black or 'swamp' spruce has also been collected: *nedus*. Its relationship to *ts'o* could be that of a folk specific, or they could be two generics, one of which is in the process of being subsumed in the other. The two species of *Sorbus* present in the local flora are very similar and can be used interchangeably; they are not distinguished by Witsuwit'en people. Similarly, the horse-tails *Equisetum arvense* and *E. pratense* are not distinguished. Other exceptions include the use of single terms to refer to members of the genera *Salix* and *Carex*.

⁶Priscilla Kari (1978) does report a name for the *Spiraea*, and Pat Namox also identified it to Sharon Hargus in 1996, suggesting that it was named. Ethnobotanical knowledge is clearly variable among the Witsuwit'en as it is among other peoples.

⁷Although these terms are synonymous, they do not have exactly the same distribution in Witsuwit'en. Both can be used as common nouns, but only *mi?* occurs in proper nouns (berry names). *mi?* can also refer to berry-like things (e.g., *lemi?* 'fingers (collectively)', *qelemi?* 'toes (collectively)', *tsa?mi?* 'small, hard feces', *ye bey ts'əmi?* 'fruit' (lit. 'overseas berries')). *nət'ay* is not attested with this kind of semantic extension.

⁸While not all languages encode a "vine" life form, vine is one of the five classes used in Brown's analysis of cross-linguistic patterns of life form occurrence; mushroom, flower, moss, and berry plant are not included in his list.

⁹Atran (1985:300) comments that:

...occasionally mushrooms, as for the Brou, and possibly mosses, as in the case of the Batak of Sumatra, also assume life-form status. This may owe more to the distinctive role they are perceived to play in the economy of nature than to their readily visible external morphology (i.e., habitus), for the non-flowering plants (exclusive of the ferns, perhaps) may be generally construed as "residual" categories with no clearly defined morphological aspect...Ray's (1682) *Musci*...those small and often hidden plants that lack phenomenal resolution for human beings.

The last comment perhaps accounts for the fact that the "moss" and "mushrooms" life forms are often "empty" or monogeneric, as they are for the Witsuwit'en.

¹⁰ *ntsəy?* 'it is bad' is offered as a translation of "it's poisonous." We have been unsuccessful at eliciting any other Witsuwit'en terms for "poison" or "poisonous."

¹¹ Gitksan words are transcribed in the Gitksan practical orthography. Gitksan words discussed in this paper are from Johnson (1997) and have been reviewed by linguist Bruce Rigsby (University of Queensland). Carrier names discussed below are from Morice (1932) and Antoine *et al.* (1974). Sekani data are from Kaska Tribal Council (1997). Dena'ina data are from Kari (1987, 1994). Ahtna data are from Kari (1990). Coast Tsimshian data are from Dunn (1978). Both Carrier and Sekani terms have been retranscribed here using standard phonetic symbols. Other transcription systems have not been altered, and are described in the references cited.

¹² We count names as distinct if they contain distinct morphemes. Thus *qaq dəlq'ə'n* and *q'entsec* are tallied as different names of *Cornus stolonifera*, whereas we consider *detsan qeget*, *detsan ?əl*, and *detsan cən* variations of the same name, since they all contain *detsan* 'crow, raven' as the first part of a compound. We do not count as distinct names which differ in minor phonological ways, such as *sasco** *tsasco* 'wild carrot' or *c'eyebedzəq** *c'ebedzəq* 'mushroom, fungus'.

¹³ We follow the usual practice in Athabaskan linguistics in analyzing *dəyi'n* (and other words like it) as a prefixed root. Although this instance of *də-* lacks a meaning of its own and cannot be separated from the root *yi'n*, there is a handful of other animate nouns in Witsuwit'en which occur with *də-*, suggesting that it is a separate grammatical element, a prefix: *dəni* 'man, person; bull moose', *dət'ay* 'duck', *dəq'ay* 'cutthroat trout, rainbow trout', *dəguh* 'mosquito', *dəyəq* 'canyon', *dəq'a'n* 'woodchuck, gopher', *dəbiç* 'sheep'.

¹⁴ The Cree word for *Pyrola* sp. also means 'beaver's ear' (Chalifoux with Anderson 1977). This may be an instance of loan translation between Algonquian and Athabaskan languages.

¹⁵ The association of crow or raven with juniper appears widespread among Athabaskan languages; the Kaska term for common juniper, an important medicinal plant in that area as well, is *nosgâ al'* (lit. 'raven's boughs') (Kaska Tribal Council 1997).

¹⁶ Bunchberry is also named by association with kinnikinnik as *dəniç yez*, as discussed above.

¹⁷ Some shared plant names appear to have been borrowed from Witsuwit'en into Gitksan. (1) Consider Gitksan *gahldaats*: Witsuwit'en *xɛft'ats* 'yellow pond lily rootstock', Central Carrier *xɛft'az*, Sekani *teh t'aze*, *teh t'azè?*, Ahtna *xelt'aats'i* and Dena'ina *qalt'ats'a* 'yellow pond lily rootstock' all appear to contain reflexes of a Proto-Athapaskan stem */t'a'ts' 'cut'. Furthermore, the Coast Tsimshian name *onxt* (Dunn 1978) is not a cognate of the Gitksan name. (2) The resemblance between the Witsuwit'en term *ts'əx* "mountain juniper" and the Gitksan term *ts'eex*, for an ecotype of common juniper, also appears not to be coincidental. Similar forms are found in Nisga'a (McNeary 1976) and Sekani (*ts'əx*), though the Dena'ina forms (*chegenza*, *chuni ela*, *chint'uyn*, and *shint'una*) are unrelated. We see the Witsuwit'en term as Athapaskan in origin, derived from Proto-Athapaskan *c'əxd'hat'. (3) The Gitksan term *ganix*, *gan hix* 'pine cambium' also appears to have been borrowed from Witsuwit'en *q'əniç*. Cognates in other Athapaskan languages include Carrier *k'enih*, Sekani *k'eni*, and Ahtna *k'iił* 'watery sap', 'birch sap', 'cottonwood sap'. There is no Coast Tsimshian term reported for pine cambium to compare with the Gitksan form, as it is not harvestable for food on the coast. The phonological resemblance to the Witsuwit'en term and identity of meaning strongly suggest borrowing from Witsuwit'en into Gitksan given the widespread distribution of the term in other Athapaskan languages and its lack in Coast Tsimshian (despite the fact that the Gitksan term can be semantically analysed in Gitksan as 'tree fat'[Rigsby, personal communication]).

LITERATURE CITED

- ANTOINE, F., C. BIRD, A. ISAAC, N. PRINCE, S. SAM, R. WALKER, and D.B. WILKINSON. 1974. Central Carrier Bilingual Dictionary. Fort St. James: Carrier Linguistic Committee.
- ATRAN, SCOTT. 1985. The nature of folk-botanical life forms. *American Anthropologist* 87:298-313.
- . 1990. *Cognitive Foundations of Natural History*. Cambridge University Press, Cambridge.
- BALÉE, WILLIAM. 1989. Nomenclatural patterns in Ka'apor ethnobotany. *Journal of Ethnobiology* 9(1):1-24.
- BERLIN, BRENT. 1992. *Ethnobiological Classification, Principles of Categorization of Plants and Animals in Traditional Societies*. Princeton University Press, Princeton, New Jersey.
- , DENNIS BREEDLOVE, and PETER RAVEN. 1973. General principles of classification and nomenclature in folk biology. *American Anthropologist* 75: 214-242.
- BROWN, CECIL H. 1977. Folk botanical life-forms: their universality and growth. *American Anthropologist* 79:317-342.
- . 1984. *Language and Living Things, Uniformities in Folk Classification and Naming*. Rutgers University Press, New Brunswick, New Jersey.
- . 1985. Mode of subsistence and folk biological taxonomy. *Current Anthropology* 26(1):43-64.
- . 1995. Lexical acculturation and ethnobiology: Utilitarianism versus intellectualism. *Journal of Linguistic Anthropology* 5(1):51-64.
- BULMER, RALPH. 1974. Folk biology in the New Guinea Highlands. *Social Science Information* 13(n.s.)(4/5):9-28.
- BYE, ROBERT A. Jr. 1986. Voucher specimens in ethnobiological studies and publications. *Journal of Ethnobiology* 6(1): 1-8.
- CHALIFOUX, LUKE, with ANNE ANDERSON. 1977. *Some Native Herbal Remedies* Edmonton: Friends of the Botanic Garden of the University of Alberta, Department of Botany, University of Alberta, Publication No. 8. Edmonton.
- CLÉMENT, DANIEL. 1990. *L'ethnobotanique Montagnaise de Mingan*. Collection Nordicana No. 53, Centre d'études nordiques, Université Laval, Cité Universitaire, Quebec.

- . 1995. Why is taxonomy utilitarian? *Journal of Ethnobiology* 15(1):1-44.
- COMPTON, BRIAN D. 1993. Upper North Wakashan and Southern Tsimshian Ethnobotany. Ph.D. thesis, University of British Columbia, Vancouver.
- DUNN, J. A. 1978. A Practical Dictionary of the Coast Tsimshian Language. National Museum of Man Mercury Series Canadian Ethnology Service Paper No. 42. National Museums of Canada, Ottawa.
- ELLEN, ROY. 1993. Cultural Relations of Classification, An Analysis of Nuaulu Animal Categories from Central Seram. Cambridge University Press, Cambridge.
- ELLIS, C. DOUGLAS. 1983. Spoken Cree, West Coast of James Bay. (2nd/rev. ed.) Pica Pica Press, Toronto.
- GARDNER, PETER M. 1976. Birds, words, and a requiem for the omniscient informant. *American Ethnologist* 3: 446-468.
- GOTTESFELD, LESLIE M. JOHNSON. 1994. Conservation and traditional beliefs: An analysis of Gitksan and Wet'suwet'en Subsistence, Northwest British Columbia, Canada. *Human Ecology* 22(4):443-465.
- . 1995. The importance of plant foods in traditional Wet'suwet'en nutrition. *Ecology of Food and Nutrition* 34:149-169.
- HAYS, TERRENCE E. 1974. Mauna: Explorations in Ndumba Ethnobotany. Ph.D. dissertation, University of Washington, Seattle.
- HULTÉN, ERIC. 1968. Flora of Alaska and Neighboring Territories: A Manual of the Vascular Plants. Stanford University Press, Stanford, California.
- HUNN, EUGENE S. 1976. Toward a perceptual model of folk biological classification. *American Ethnologist* 3:508-524.
- . 1982. The utilitarian factor in folk biological classification. *American Anthropologist* 84(4): 830-847.
- . 1996. Columbia Plateau Indian place names: What can they teach us? *Journal of Linguistic Anthropology* 6(1):3-26.
- . and DAVID H. FRENCH. 1984. Alternatives to taxonomic hierarchy: The Sahaptin case. *Journal of Ethnobiology* 4(1): 73-92.
- JENNESS, DIAMOND. 1943. The Carrier Indians of the Bulkley River: Their social and religious life. *Anthropological Papers 2, Bureau of American Ethnology Bulletin* 133. Washington, D.C.
- JOHNS, TIMOTHY. 1990. *With Bitter Herbs They Shall Eat It, Chemical Ecology and the Origins of Human Diet and Medicine*. University of Arizona Press, Tucson.
- JOHNSON, LESLIE M. 1997. *Health, Wholeness and the Land: Gitksan Traditional Plant Use and Healing*. Ph.D. dissertation, University of Alberta, Edmonton.
- JOHNSON-GOTTESFELD, LESLIE M. and DALE H. VITT. 1996. The identification of *Sphagnum* for diapers by North American Indigenous People. *Evansia* 13(3):103-108.
- KARI, JAMES. 1975. Babine, a new Athabaskan linguistic grouping. Unpublished manuscript, University of Alaska, Fairbanks.
- . 1990. *Ahtna Athabaskan Dictionary*. Alaska Native Language Center, Fairbanks.
- . 1994. *Dictionary of the Dena'ina Athabaskan language*. Vol. 1: Topical vocabulary. Unpublished manuscript, University of Alaska, Fairbanks.
- . and SHARON HARGUS. 1989. *Dialectology, ethnonymy and prehistory in the Northwest portion of the 'Carrier' language area*. Unpublished manuscript, University of Alaska, Fairbanks, and University of Washington, Seattle.
- KARI, PRISCILLA [RUSSELL]. 1978. Hagwilget-Moricetown Carrier plant list. Unpublished manuscript on file, library of Gitksan Treaty Office, Hazelton, British Columbia.
- . 1987. *Tenaina Plantlore Dena'ina K'et'una*. An Ethnobotany of the Dena'ina Indians of Southcentral Alaska. U.S. Department of the Interior, National Park Service, Alaska Region, Anchorage.
- KASKA TRIBAL COUNCIL. 1997. *Guzāgi K'úgé', Our Language Book: Nouns, Kaska, Mountain Slavey and Sekani*. Kaska Tribal Council, Watson Lake, Yukon.

- McNEARY, S. 1976. Where fire came down. Social and economic life of the Niska. Ph.D thesis, Bryn Mawr College, Bryn Mawr, Pennsylvania.
- MILLS, ANTONIA. 1994. Eagle Down is Our Law. Douglas and McIntyre, Vancouver and Seattle.
- MORICE, A.G. 1932. The Carrier Language, Déné Family, a Grammar and Dictionary Combined. 2 Volumes. Vienna, Austria.
- MORRIS, BRIAN. 1984. The pragmatics of folk classification. *Journal of Ethnobiology* 4(1): 45-60.
- RANDALL, ROBERT A. 1976. How tall is a taxonomic tree? Some evidence for dwarfism. *American Ethnologist* 3: 543-553.
- . 1987. The nature of highly inclusive folk-botanical categories. *American Anthropologist* 89:143-146.
- and EUGENE S. HUNN. 1984. Do life-forms evolve or do uses for life? Some doubts about Brown's universals hypotheses. *American Ethnologist* 11:329-349.
- RICE, KEREN. 1989. A Grammar of Slave. Mouton de Gruyter, Berlin.
- RIGSBY, BRUCE and JAMES KARI. 1987. Gitksan and Wet'suwet'en linguistic relations. Unpublished manuscript on file, library of the Office of the Gitksan Hereditary Chiefs, Hazelton, British Columbia.
- STORY, GILLIAN. 1984. Babine and Carrier Phonology: A Historically Oriented Study. Summer Institute of Linguistics, Arlington, Texas.
- STROSS, B. 1973. Acquisition of botanical terminology by Tzeltal children. Pp. 107-141 in *Meaning in Mayan Languages*, M.S. Edmonson (editor). Mouton, The Hague.
- TALLER DE TRADICIÓN ORAL and PIERRE BEAUCAGE. 1987. Catégories pratiques et taxonomie: notes sur les classifications et les pratiques botaniques des Nahuas (Sierra Norte de Puebla, Mexique). *Recherches Amérindiennes au Québec* 17(4):17-35.
- TAYLOR, PAUL MICHAEL. 1990. The Folk Biology of the Tobelo People, a Study in Folk Classification. Smithsonian Contributions to Anthropology No. 34. Smithsonian Institution Press, Washington, D.C.
- TURNER, NANCY J. 1974. Plant taxonomic systems and ethnobotany of three contemporary Indian groups of the Pacific Northwest (Haida, Bella Coola, and Lillooet). *Syesis* 7 (Supplement No. 1):1-104.
- . 1975. Food Plants of British Columbia Indians Part1/ Coastal Peoples. British Columbia Provincial Museum Handbook 34. Province of British Columbia, Victoria.
- . 1987. General plant categories in Thompson and Lillooet, two Interior Salish languages of British Columbia. *Journal of Ethnobiology* 7(1):55-82.
- . 1989. "All berries have relations," mid-range folk plant groupings in Thompson and Lillooet Interior Salish. *Journal of Ethnobiology* 9(1):69-110.
- , J. THOMAS, B.F. CARLSON, and R.T. OGILVIE. 1983. Ethnobotany of the Nitinaht Indians of Vancouver Island. British Columbia Provincial Museum, Occasional Papers Series No. 24. British Columbia Provincial Museum, Victoria, and Parks Canada, Western Region.
- WADDY, JULIE. 1982. Biological classification from a Groote Eylandt aborigine's point of view. *Journal of Ethnobiology* 2(1):63-77.
- WIERZBICKA, ANNA. 1984. Apples are not a "kind of fruit": The semantics of human categories. *American Ethnologist* 11:313-328.